# REPORT RESUMES

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COMPARISON OF THE INITIAL TEACHING ALPHABET WITH THE TRADITIONAL ALPHABET IN FIRST-GRADE READING.

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A COMPARISON OF THE INITIAL TEACHING ALPHABET AND THE TRADITIONAL ALPHABET IN FIRST-GRADE READING WAS CONDUCTED. SAMPLES WERE SELECTED FROM SEVEN ELEMENTARY SCHOOLS THAT WERE REPRESENTATIVE OF DIFFERING SOCIOECONOMIC STATUS. THE PUPILS WERE PAIRED INTO MATCHED GROUPS. AN EXPERIMENTAL GROUP WAS TAUGHT READING BY THE INITIAL TEACHING ALPHABET (ITA) METHOD. THE OTHER GROUP WAS TAUGHT BY THE TRADITIONAL ORTHOGRAPHY (TO) METHOD. STANDARDIZED READING TESTS WERE ADMINISTERED TO OBTAIN PERFORMANCE SCORES, AND ANALYSIS OF COVARIANCE EMPLOYED. DATA WERE ALSO COLLECTED BY OBSERVATIONS AND INTERVIEWS, AND CHI-SQUARE STATISTICS WERE USED FOR ANALYSIS. THE RESULTS INDICATED THAT THE ITA GROUPS GAINED SIGNIFICANTLY HIGHER PERFORMANCE RATINGS ON A TEST USING ITA THAN THE CONTROL GROUPS WHO TOOK THE TEST IN THE TRADITIONAL FORM. THERE WERE NO SIGNIFICANT DIFFERENCES IN SCORES OF THE TOTAL GROUPS ON TESTS TAKEN IN THE TRADITIONAL ALPHABET. THE CONTROL GROUPS GAINED SIGNIFICANTLY IN SPELLING. THE NEED FOR FOLLOWUP STUDIES IN LATER GRADES WAS MENTIONED. (RS)

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# COMPARISON OF THE INITIAL TEACHING ALPHABET WITH THE TRADITIONAL ALPHABET IN FIRST-GRADE READING

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Robert E. Chasnoff

Newark State College
Union, New Jersey

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# CHAPTER ONE

## PROBLEM

The purpose of this study was to compare the Initial Teaching Alphabet with the traditional alphabet in first-grade reading. In each of seven schools, pairs of classes were taught reading and other language activities by a single teacher. A second teacher taught other activities. The experimental class was taught in a classroom where only the Initial Teaching Alphabet was used. The control class was taught in a classroom where only the traditional orthography was used. The two teachers shared time teaching in the two classrooms.

## PROCEDURES

The procedures followed in this study were:

1. Organizing the research program
2. Securing initial data
3. Observing and interviewing selected Ss
4. Testing on dependent variables
5. Securing, treating, and scoring writing samples
6. Treating data statistically
7. Evaluating data gained from observations and interviews of selected Ss

## DEFINITION OF TERMS

Sir James Pitman's Initial Teach Alphabet is now commonly referred to as i.t.a. This usage is employed in this report. Similarly, t.o. is used to refer to the traditional orthography, following current usage.

## POPULATION

The Ss attended schools in various types of communities. An attempt was made to invite participation of schools representing communities of different size and socioeconomic status. Two schools were located in a relatively wealthy, established, suburban community. A third school served a middle-class population which has been increasing rapidly over the last decade. A fourth school was situated in a small, rural village. Another school was located in a rural, resort area where there has been a recent acceleration of population gain. Two were city schools in poor neighborhoods.

## HYPOTHESES

The following null hypotheses were tested:

1. There will be no significant difference between the means of experimental and control groups with respect to scores gained on a test with the experiment group tested by a test transliterated into i.t.a. and the control group tested by the same test in t.o.

2. There will be no significant difference between the means of experimental and control groups with respect to scores gained on tests with all Ss taking the tests in t.o.

3. There will be no significant difference between the means of experimental and control groups with respect to scores assigned by judges to writing samples.

## NEED FOR THE STUDY

Every few years, it seems, magazines, newspapers, and radio and television shows broadcast news about a new, sure-fire method of revolutionizing and improving education. Frequently, certain commercial interests inspire and underwrite these campaigns. Rarely are results of responsible research made available. Now, the i.t.a. has been brought to the same kind of popular attention as have some of the other schemes.

However, in this matter there is evidence of considerable responsible professional interest. Some preliminary research already has been conducted. Currently, many studies on the use of i.t.a. are under way, some of these under the aegis of a massive study of first-grade reading sponsored by the U. S. Office of Education.

### The Professional Dialogue

A responsible dialogue among educators is taking place about the use of i.t.a. In this dialogue i.t.a. is not being isolated as an unrelated gimmick but is viewed within the context of broader educational issues.

The promise. The editors of Phi Delta Kappan, generally not given to effusive praise of untested ideas, refer to the use of i.t.a. in England as "the first truly revolutionary approach to the teaching of reading in English to be undertaken in this century" (See: Downing, 1964 b, p. 322). And in the Review of Educational Research i.t.a. is described as a potentially useful theoretical model and as "one of the most exciting new ideas on teaching children to read . . ." (Holmes and Singer, 1964, p. 130).

Karlsen suggests that it may be useful to consider the alphabet in terms of the linguistic structure of the English language (1964). He makes clear, however, that no one to date actually has suggested considering this alphabet as a linguistic method. But Karlsen argues that the use of this medium is "most promising and most consistent with what we know about reading instruction and about the linguistic structure of English" (p. 9).

Many educators have indicated their interest in i.t.a. by visiting schools where i.t.a. has been used. In this country thousands have visited Bethlehem, Pennsylvania to view the demonstration being conducted there. Many educators have visited schools in England where the current interest in i.t.a. began. Harrison reports that in one school in Oldham, England there were over 4,000 visitors (1964).

The topic of i.t.a. has been introduced at many educational conventions, meetings, workshops, and speeches. There have been numerous articles and several books written on i.t.a. There is an extensive bibliography dealing with i.t.a. (See: Timm, 1964).

Questions. Ranged on the other side of the dialogue are questions raised by other educators. Cutts says that we do not know as yet the long-range effect of i.t.a. on reading and spelling performance of pupils when they enter higher grades. He questions the possible "Hawthorne effect" derived from teachers' enthusiasm and the glamor of an experimental situation on pupils (1964, p. 21-22). Cutts lists other areas of concern: whether some children may not be able to make an effective transition to t.o.; whether too early and unjudicious acceptance of i.t.a. may create a sharp cleavage between proponents and opponents of i.t.a.; and whether the current enthusiasm on the part of some educators for an early start in reading may be misdirected particularly if they plan to use i.t.a. to gain such an end.

Durkin questions whether Downing's preliminary research reports on the use of i.t.a. in England involve too small an N on which to form conclusions (1964). She also raises some questions with respect to the similarity of experiences with materials by children in the i.t.a. and t.o. groups. She suggests that Downing's findings are not too helpful because while significant differences favoring the i.t.a. group were found for reading accuracy and comprehension on a reading test, differences in speed were not found.

Keislar raises these questions stressing the need for additional research:

> Should there not be a careful empirical study of the discriminability and utility of all letter forms proposed for a new orthography before the system is tried out? When the experimental group is called on to engage in writing and spelling later, will interfering effects on exposure to i.t.a. be revealed? Were the reading passages in the criterion tests restricted to a narrow range of English words with regular spellings, thus failing to expose possible inadequacies of the experimental group (1964, pp. 44-45)?

Finally, Barret evaluates reports of the current study conducted in Bethlehem, Pennsylvania (1965). He notes that these reports contain no mention of the comparable abilities of i.t.a. and t.o. teachers. He points out that there are marked differences between the reading series used by the i.t.a. population and the materials used by the control group. Barret says there is no clear report on the amount of time devoted to reading instruction by the two groups. Barret also raises questions about the incomplete sample on which data are reported.

The significance. The significance of an issue often may be judged by the misconceptions arising about it. Downing asserts that misconceptions about i.t.a. have arisen from the rapid spread in interest caused by the many articles in popular magazines and newspapers and the excessive enthusiasm of some "salesmen" of i.t.a. (1965).

He adds:

> But, whatever the cause it would be a tragedy for the development of literacy in English if the real benefits of i.t.a. were lost through making i.t.a. a cult. So often in the past, important innovations in education have suffered setbacks because of a primitive wave of popular enthusiasm which has resulted in a half-baked use of the innovation and its consequent discredit (p. 492).

Clearly, there is a good deal of interest in i.t.a. If i.t.a. does, in fact, help children read as well as some of its enthusiasts claim and as preliminary data appear to suggest, then it is likely that some very important changes are destined to take place in the teaching of reading and in other aspects of elementary-school programs as well. Yet, the doubts raised by responsible educators must be considered. Thus, it seems that there are valid reasons to compare the i.t.a. with the traditional alphabet in first-grade reading and to arrange to study again the language arts performances of the same pupils in later years.

## OVERVIEW OF THIS REPORT

This chapter has been an introduction to the report of the research originally proposed (Chasnoff, 1964). Chapter Two includes a review of related research. Chapter Three contains a description of the procedures used in this study. In Chapter Four are presented the results. The final chapter is a discussion of the implications and possible significance of the findings.

# CHAPTER TWO

## RELATED RESEARCH

In the late 1940's and during the 1950's English educators and government leaders discussed their concern about the fact that about a third of the pupils were leaving school unable to read properly. Sir James Pitman participated in these discussions. His response came in the form of an augmented alphabet for beginning readers, now known as i.t.a.

Pitman has been influenced by the long history of attempts at simplified spelling reforms. He was cognizant of early attempts to use experimental alphabets in schools. His grandfather, Sir Isaac Pitman, had been one of the early leaders in this area of interest.

The i.t.a. is a medium meant to make the job of decoding sounds easier for beginning readers (Pitman, 1962, Harrison, 1964). No capital letters are used. Using i.t.a., children meet with fewer representations of words than do children who use the traditional orthography.

The i.t.a. is intended to avoid the difficulties caused by one symbol standing for more than one sound. Some new symbols have been added to the regular alphabet. It is argued that pupils do not need to learn the many different ways ordinarily used in English to represent certain sounds. Moreover, i.t.a. permits pupils always to read from left to right. For example, pupils may read through a word without having to look for clues at the end of a word to find out the sound of a symbol in the middle of the word.

The i.t.a. represents 40 percent of words to beginning readers exactly as the traditional orthography does; 25 percent of the words are very nearly alike; and the remaining 35 percent are significantly different.

Unlike many of the suggested alphabet reforms of the past, this alphabet is intended to be used only while pupils are in the beginning stages of reading, to be replaced when the pupils are ready by the use of the t.o. Pitman has insisted--as have others--that i.t.a. is not a new approach to teaching reading but merely a medium.

### REPORTS OF RESEARCH IN ENGLAND

Downing reports on results of experiments using i.t.a. (1963, 1964 a, 1964 b, 1964 c). In these experiments teachers were asked to teach beginning reading to four - and five - year-old children in ways that they usually employed in teaching reading. In experimental groups i.t.a. was used. In control groups t.o. was used. Materials used in both experimental and control groups were the same basal reading series, the books having been transliterated into i.t.a. for the i.t.a. groups. The groups were matched with respect to age, sex, social class, and intelligence. The experimental classes consisted of over 2,000 pupils.

The Data Data are presented on the speed with which pupils made their way through the reading series. Downing reports data on 316 children from the experimental group and 610 children in the control group. The findings are that the i.t.a. population went through the series at a speed that was statistically faster than that of the t.o. group.

Downing also reports data on 345 i.t.a. pupils and 623 t.o. pupils with respect to ability to read words presented out of context. Downing refers to this ability as "decoding ability." Scores on the Schonell Graded Word Reading Test were significantly higher for the experimental population. In this testing, the experimental group read from tests transliterated into i.t.a.

The question of whether pupils who learned to read using i.t.a. can make the transfer satisfactorily to t.o. is considered in further data presented by Downing. Scores were gained from two forms of the Neale Analysis of Reading Ability, an individual test. Data are presented for 146 i.t.a. pupils and 170 Ss in the control group. The i.t.a. population first took the test in i.t.a. A month later the Ss were tested again, this time the test was printed in t.o.

Downing reports that at the first testing the i.t.a. pupils' scores were significantly higher than were the scores of the pupils in the control group.

Downing then presents data comparing the i.t.a. population's scores on the two tests. In comparing i.t.a. pupils' scores in the first testing (done with i.t.a.) with their scores in the second testing (in t.o.), these i.t.a. pupils were found to read t.o. faster. However, their accuracy in reading t.o. was less than their accuracy had been in i.t.a. the previous month. Their comprehension, it was found, was about the same in t.o. as it had been a month earlier when they had read in i.t.a.

Finally, Downing reports on comparisons of i.t.a. population scores with the control group's scores when all pupils took the test in t.o. The experimental group's scores were significantly higher in accuracy and comprehension. Scores on speed were not significantly higher but tended to favor the experimental group.

Downing asserts that only tentative conclusions can be reached at the present stage. However, he suggests that if later analyses of the records from the total sample confirm the initial findings then the data he presents would contain great importance as a preventive measure against reading failure.

Data from Oldham, England

One of the school systems participating in the study described above was Oldham. This community's school personnel's experiences with i.t.a. are described by Harrison (1964). As in the large-scale experiment with i.t.a. test scores and the number of books read in the basal series experimental groups were compared with scores of the control group. And as was true of reports of the large-scale experiment, here again scores favored the i.t.a. population.

Harrison stresses the importance of appraisals beyond objective tests and statistics. He presents eight areas in which subjective assessments gained from teachers' anecdotes and examples of pupils' work all appear to favor the i.t.a. population. First, he reports that teachers said they felt that the over-all "standards" of reading were higher. Second, it was reported that "bright" and "slower" children learned more rapidly, read more for pleasure, and did better written work. Third, Harrison reports that the five headteachers involved agreed that i.t.a. reduced the number of children failing at beginning reading. Fourth, greater confidence in dealing with books was noted. Fifth, enthusiasm for reading and heightened interest in books constituted another area in which teachers' anecdotes favored the i.t.a. population. The sixth point made was that teachers reported that their work was happier, there was greater independence by "brighter" pupils, thus permitting more time to devote to the "duller children." Seventh, Harrison presents examples of spontaneous children's writing in i.t.a.--exciting, personal stories. Finally, the headteachers were reported to feel that children were benefiting by possessing greater maturity, "greater steadiness of application," and "improved behaviour."

## REPORTS ON I.T.A. IN THE U.S.

As noted in Chapter One many studies involving the use of i.t.a. are currently in progress in the United States. Some are being run under experimental conditions. Others are informal attempts to use i.t.a. on a limited basis. There are some schools where the emphasis on the use of i.t.a. is to demonstrate the use of the alphabet to other educators.

The Bethlehem Program

Probably the most significant program is that conducted in Bethlehem, Pennsylvania under the direction of Professor Mazurkiewicz of Lehigh University (1964 b, 1965). The program was begun in the schools in 1963 with the intention of continuing for three years. The goals of the program are described as follows:

> Essentially this Lehigh-Bethlehem i.t.a. Study is first a demonstration of the use of the Initial Teaching Alphabet in reading instruction and secondly an evaluation of its effectiveness. To accomplish both purposes the following were considerations:
>
> A demonstration of the use of i.t.a. should indicate how the new program could be phased into a school system, what problems needed to be overcome, and how these were solved.
>
> An evaluation should have experimental and control populations which are identical in terms of a distribution of intelligence, readiness status, and socio-cultural backgrounds and followed for a period of at least three years (1964 b, p. 766).

In September, 1963 the number of Ss in the experimental group was 500. There were 1,000 in the control group. It is reported that both populations were exposed to what was a broad language arts approach to reading instruction. The control group used a co-basal program of instruction. The experimental group used the Early-to-Read reading series prepared and printed for use in i.t.a. This latter series emphasized a varied approach to reading but teachers' manuals and pupils' workbooks stressed the early learning of the sounds of the various grapheme symbols.

Visitors were welcome to view the program and converse with teachers. Many workshops were held. Data were made available at stages of the program by means of many speeches and by means of numerous published reports (See: I.T.A. Bulletin, 1963, 1964 a, 1964 b, 1964-1965, 1965 a, 1965 b, Mazurkiewicz, 1964 a, 1964 b, 1965).

During-the-year reports. At the ten-week mark, it is reported that the i.t.a. population could deal with 321 words as a result of exposure to workbooks and reading books of their reading series. The t.o. population, by comparison, could read 66 words. By the fifth month it is reported that the i.t.a. children could learn to make, fix, and use associations of the i.t.a. symbols to language sounds in a short period of time. It is reported that for the "bright" child, three to four months appeared to be needed while the "average" child needed about five to six months. At the fifth month of school a small sample of the i.t.a. population was given the Botel Word Recognition Inventory transliterated into i.t.a. It is reported that achievement was "typically" at a 3-1 level.

Reports made for the sixth month deal with comparisons of achievement on the Botel Word Recognition Inventory by children representing various socioeconomic levels. Data are reported for the "middle-upper" levels as well as the "lower" levels. For the "middle" and "upper" level group it was found that almost 58 percent of the i.t.a. population achieved an instructional level of 3-1 or higher. In the comparable t.o. group it is reported that 3.6 percent achieved the 3-1 level or higher. For these data the N for the i.t.a. population was 78. N for the t.o. population was 58.

The N for the "lower" socioeconomic group tested is not given. It is reported that in the i.t.a. population 9 percent scored at the pre-primer level or below. For the comparable t.o. population representing the same socioeconomic level it is reported that 36.2 percent of the pupils scored at the pre-primer level or below.

At the beginning of the seventh month children in the "top" reading groups are reported to have been reading at levels extending from 2-6 to 3-2 as defined in the i.t.a. Early-to-Read Series.

Teacher-determined instructional levels for all pupils in all populations are presented for the eighth month. Instructional levels were determined by the books in the various series which pupils could recognize words and understand the content. The levels of the i.t.a. group are shown to be that 24 percent were reading what was considered to be third-grade materials. About 51 percent are reported to be reading second-grade reading level books. 14 percent were at the first-grade level. At the primer level and below were about 11 percent. On the other hand, the reports show a different picture for the t.o. group. No children were reading from a third-grade book. About 6 percent were reading from a second-grade book. Over 74 percent were reading from a first-grade book and nearly 20 percent were reading at the primer level or below.

End-of-the-year testing. Testing was done at the end of the first grade. All pupils took the tests in t.o. Results are presented from the California Reading Test (Lower Primary), California Reading Test (Upper Primary), and Stanford Achievement Spelling Test (Primary). For each group scores are given for 114 Ss. The intelligence quotient for the sample reported on was about 109 for both populations and the means were not significantly different. On the Lower Primary California Reading Test, Total Reading scores for this sample of the i.t.a. population were significantly higher than those of the sample of the t.o. population. Word Recognition scores were significantly higher in favor of the i.t.a. group but Comprehension scores were not. On the Upper Primary test, however, it was found that the i.t.a. group performed significantly better on the Comprehension part of the test as well. On the Spelling section of the Stanford Achievement Test it was found that there were no significant differences between the groups of 114 Ss.

Beginning-of-second-grade test results. There are reports of status in September, when the original pupils returned to the second grade after the summer hiatus. At the beginning of the second grade two-thirds of the i.t.a. pupils are reported to have made the transition to t.o. and could receive instruction in t.o. The remaining third of the i.t.a. population is reported to have needed a continuation of instruction in i.t.a. at that time.

Mazurkiewicz also shows changes in Word Recognition and Comprehension scores on the California Reading Tests (Upper Primary) over the summer. He explains changes in scores on tests from May, 1964 to September, 1964 for the population of children leaving first grade and entering the second:

> Raw score comparisons from May to September in each population show a loss in word recognition in both populations. The loss is insignificant in the i.t.a. population. However, in the t.o. population the loss in word recognition equals one half point. A small improvement in the mean comprehension score of the t.o. population is indicated. But a significant gain of over two points is shown in the i.t.a. group. Thus, the score differential in comprehension, shown as almost significant at the 5 percent level in the May testing, is now very significant (I.T.A. Bulletin, 1965 a, p.5. Italics in original).

Further data on the second graders. Data for the same original population are presented as of April 1965 as follows:

> . . . some 25 percent of the i.t.a.-taught population are reading materials at 3-2 or above levels while none of the t.o. trained population are in material at this difficult level (I.T.A. Bulletin, 1965 b, p. 1).

It is also shown that in April about 11 percent of the second-grade i.t.a. population were reading at the 2-1 level or below including about 7 percent of this group which had not yet made the transition from i.t.a. to t.o. In contrast to the 11 percent of the i.t.a. population at the 2-1 level or below, the data show that nearly 36 percent of the t.o. population was reading from books scaled at the 2-1 or below.

## Reports of the Replication Study with First Graders in Bethlehem, Pennsylvania

As noted above, the demonstration at Bethlehem, Pennsylvania was planned to be a three-year project. In the second year two-thirds of the first-grade pupils were taught with i.t.a. and the remaining one-third were taught in t.o. Again, as was done for the first year, comparisons were made of pupils' status in instructional reading level of the i.t.a. reading series and the instructional reading levels at which t.o. pupils were placed in the various t.o. series used. As of April some 62 percent of the i.t.a. population were "instructionally placed" at 2-2 or higher level. Only one-fourth of 1 percent of the t.o. population were placed that high. About 14 percent of the i.t.a. pupils were placed at the primer level or below compared with 26 percent of the t.o. pupils placed at these levels. In addition these reports also indicate that "formal transition" from i.t.a. to t.o. materials was taking place earlier for the 1964-65 population than was true the previous year. From this, Mazurkiewicz infers that two possible reasons for the earlier formal transition were greater familiarity of the teachers with the program and also the fact that for the first-year program, the final transition book of the i.t.a. series was not available until late in April.

## Conclusions Reached by Participants in the Bethlehem Study

These many reports have led the educators connected with the project to several conclusions. First, there was felt to be confirmation of the English studies that the traditional alphabet is a real source of difficulty for beginning readers and that the i.t.a. helps children to read with less difficulty and less frustration. Second, it was stated that children can read and write better with i.t.a. during the school year and after the summer break. Finally, other observations of the program were noted: "improvement of speech defects," "dramatic flowering" of self-expression in writing, children being more self-sufficient, "teaching made easier." It was concluded that while i.t.a. would not be a panacea for all educational problems, wide use of i.t.a. was supported by research evidence and observations.

## Reports from Other Projects Using I.T.A. in the United States

Most reports simply are evangelical in tone. In only a few are there presented data which appear to have been gained in an objective manner. Data from two of the latter type of report are summarized below. In East Islip, New York a three-year study of i.t.a. was begun in September, 1964 (I.T.A. Bulletin, 1965, b). For the first year one first-grade class was exposed to i.t.a. At the end of the sixth month of instruction the Gates Primary Reading Test was administered in t.o. All but one child scored at the 2-0 grade level or above on both Word Meaning and Sentence Meaning sections of the test. The median grade score was 2-5 for both parts. Over 30 percent scored 3-0 scores or over.

A report from Simsbury, Connecticut is given for two experimental first-grade classes matched with 10 control classes (I.T.A. Bulletin, 1965, b). Teachers were asked to teach all classes in their usual manner. The i.t.a. Early-to-Read series was used for the experimental population and several other series were used for the t.o. classes. Results are presented from a spelling test given at the end of five months of instruction. The test was made up of words taken at random from the Rinsland Scale. 23 were first-grade words, 14 were second-grade words. Five were grade-four words and 3 were fifth-grade words. A significant difference at the 5 percent level in number of words spelled correctly was found in favor of the experimental population.

## OTHER RELATED RESEARCH FINDINGS

In this section there is a brief review of findings from three studies which do not deal directly with i.t.a. but are related to this study.

### Use of Another Orthography

Sebesta reports on the use of an artifical orthography constructed from traditional symbols (1964). With 27 matched pairs of children it was found that the special alphabet did not hinder word recognition in t.o.

### Research on Letter Discrimination

Popp's study of kindergarten children's visual discrimination of letters has a possible relationship with the use of special alphabets (1964). Popp reports that the task of discriminating between the pair of letters "b" and "d" and the pair "p" and "q," were most confusing. This is important because in i.t.a., Pitman added an extra tail to the "d" to differentiate it from the "b." Also, there is no "q" in i.t.a.

### Research with Respect to Comparing Groups

The final example is related to attempts to conduct research on reactions to certain methods and materials by comparable groups. Lucow reports his conclusions of a study on the use of Cuisenaire rods in third grade by stressing the importance of the teacher as an important variable (1964). The relation to the present study is clear. Lucow writes:

> An experiment more valid than the one reported here would result if . . . the same teacher taught both Cuisinaire and non-Cuisinaire classes in a bias-free, scientific spirit, and . . . the same amounts of time were used for instruction covering similar content (1964, p. 167).

## SUMMARY

Data reported on studies conducted in England were presented. These data appeared to support the view that children learning to read with i.t.a. were able to read words and comprehend better than similar populations taught to read in t.o. Reports from studies conducted in the United States confirmed this view. Reviews of three other studies, not on i.t.a. but related to this research, were also presented.

# CHAPTER THREE

# PROCEDURES

Certain procedures were followed throughout this study. From the outset it was made clear that this was an attempt to conduct objective research and not a demonstration or promotion of i.t.a. There were no educational visitors to the classrooms. No publicity was permitted. There were no interim reports. Members of the research team observed i.t.a. and t.o. classes only as needed and for equal amounts of time. Researchers dealt with teachers only to help them organize their classrooms and to arrange for securing data. The researchers did not act as consultants or advisors on how to teach reading or how to use the i.t.a. Teachers learned about the i.t.a. under other auspices.

Chapter Three is divided into three parts. The first part deals with the over-all procedures used for organizing the study by setting up and teaching the matched classes. Second, procedures for securing quantitative data on the entire population are described. Finally, there is a presentation of the methods of securing additional data on the selected small sample of Ss.

## ORGANIZATION OF THE PROGRAM

Pupils were assigned randomly to the experimental and control classes, following general procedures usually employed in the respective schools.

Each pair of experimental and control classes was taught by two teachers. One teacher taught reading and related language activities to both the experimental class and the control class. The other teacher taught other activities. Children in the experimental class received classroom instruction in a room where only i.t.a. was used as the reading and writing medium. Children in the control class were in classrooms where only t.o. was used. The teachers moved between the two rooms. The teachers were instructed to teach both classes using the same time schedules, ways of teaching, and, where possible, with the same materials.

### Time Schedules

Teachers created schedules which conformed to local conditions and local needs. Equal amounts of time were devoted to each activity with each class. In some schools, one teacher worked in the morning with one class and then with the other class in the afternoon. Other pairs of teachers created other organizational patterns.

In addition to controlling the amount of time, another condition with regard to time was controlled. Each class received equal amounts of instruction in certain activities at particular times of the day. For example, for one week the control class might read with the teacher who taught reading at 9 in the morning and the experimental class would read in the afternoon with the same teacher. After a week, times were reversed. The experimental class now read at 9 with this teacher and the control group worked in the afternoon with this same teacher. Throughout the year, pairs of teachers decided upon different patterns. But in all schools each class worked with a particular teacher at particular hours of the day for an equal number of times.

## Ways of Teaching

The teachers were urged to employ teaching methods which they ordinarily used. As teachers' backgrounds and school settings varied, so too did their ways of teaching. While one teacher might tend to stress the fundamentals with both classes, another teacher would concentrate greater attention to other things, such as children's stories. Some teachers progressed systematically through basal reading series. Others had their pupils skip around. Some teachers stressed oral reading. Other teachers sought a combination of oral and silent reading. Some pairs of teachers tied together the different activities each teacher led with the two groups. One teacher planned and conducted an individualized reading program with both classes. Teachers were encouraged to teach in ways that were felt to be right for them and to use, as much as possible, the same ways of teaching with both classes.

## Materials

Teachers were urged to use whatever materials they ordinarily would use without experimental conditions. In some schools the Early-to-Read series was used for the basal program with the experimental classes while other materials ordinarily used in these schools were utilized in the control classes. In other schools, exactly the same reading materials were used for both classes--the t.o. books having been transliterated into i.t.a. Some teachers used the Early-to-Read series with some pupils in the experimental class and transliterated materials with other pupils. In all schools, materials transliterated into i.t.a. were used for i.t.a. classes for supplementary materials. In addition, some i.t.a. materials were transliterated into t.o. to be used for the t.o. classes.

## PROCEDURES FOR SECURING AND TREATING DATA OF THE ENTIRE POPULATION

Scores gained on three initial measures by the experimental and control populations were compared using the t-test statistic. Also, scores gained on four final measures by both populations were compared using the t-test statistic. An analysis of covariance was also conducted using certain initial and final scores.

### Initial Data

The teachers administered the California Short-Form Test of Mental Maturity, Level 0* to the entire population within the first week of school. Several days later the Lee-Clark Reading Readiness Test* was administered. The tests were returned to the researchers for scoring and checking. Results of these tests are presented in Chapter Four. The purpose of the use of these tests was to determine whether initially there were significant differences between the experimental and control groups.

Three questionnaires were used to gain additional data about the Ss, the schools, the communities, and the teachers. One questionnaire gained information from parents about the social and home conditions under which the children lived. Special attention in this questionnaire was given to the reading readiness opportunities of each subject. The second questionnaire was filled out by each S's kindergarten teacher, if the now first-grade child had attended kindergarten in the same school. This questionnaire contained questions about each S's kindergarten experiences, with special attention given to S's interest in readiness activities. This questionnaire also gained information about parents' occupations. At the conclusion of this questionnaire was included a ten-point scale on which the kindergarten teacher was asked to predict what would be the possible reading achievement of each pupil at the end of the first grade. A third questionnaire was used to gather data specifically about each school and each community.

### End-of-the-Year Data

The Arithmetic section of the Stanford Achievement Test, Primary-Battery, Form W* was administered near the end of the year as a measurement additional to the preliminary testing noted above. The purpose was to have an additional way to compare the matching of the groups. Results are presented in the following chapter.

Data on dependent variables were secured from STAN-W, STAN-X, the California Reading Test, (Lower Primary) Form W, * and from writing samples.

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* Henceforth, in this report, initials will be used to identify these tests.

STAN-W. The STAN-W was administered to all Ss on or near the 140th day of instruction (give or take 5 days). For the experimental population the five language sections of the test had been transliterated into i.t.a The five sections in the STAN-W are labeled:

Word Reading
Paragraph meaning
Vocabulary
Spelling
Word Study Skills

The tests were scored and checked by the researchers according to directions in the test manual and according to supplementary directions provided by the publishers.*

The data gained from the five language sections of the test were used in the following ways to compare the performances of the experimental and control populations.

1. Median grade scores -- to compare over-all performance of the total groups.
2. Median grade scores -- to compare over-all performance of the classes in each of the seven schools.
3. Grade scores -- to compare performance in each section of the test by total groups.
4. Grade scores -- to compare performance in each section of the test by the classes in each of the seven schools.
5. Median grade scores -- to compare over-all performance of experimental and control groups of Ss formed in terms of scores initially gained on the CTMM, irrespective of their schools.

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* The following supplementary instructions for scoring the Spelling Test in i.t.a. issued by Harcourt, Brace, and World, Inc. were followed:

> If you administer the Spelling Test, accept as correct either traditional or i.t.a. spellings. Count as errors only those words in which the child has clearly associated the wrong sound with a symbol. In words using th, accept as correct the tail of the t curved in either direction. In words using a, accept either a or the cursive a.

STAN-X. This test was administered about a month later, near the 160th day of instruction (give or take 5 days). This time all Ss, experimental as well as control group, took the Form X test in t.o. Scoring and checking was done by the research team according to the manual of directions. Comparisons of means, as described above, were made.

CRT. This test was administered shortly after the time the STAN-X was given. Again, the tests were scored and checked by the research team according to the directions in the appropriate manual. Comparisons of means were made.

Writing samples. The teachers were asked to save two compositions written by each S on or near the 120th day of instruction (give or take 5 days). Teachers in each school gave the same instructions to both classes. They gave both groups the same amount of time and the same conditions.

These writing samples were judged, first, with respect to the quality of the communication and, second, for the quality of the handwriting.

To evaluate communication the writing samples were all typewritten on 4-by-6 cards. Spelling errors found on the original samples were typed correctly when the typist was able to determine what words the Ss were trying to spell. When the typist was unable to determine at all what a S was writing about, she typed the card exactly like the respective original. (The typist was expert in reading i.t.a.; she had transliterated many t.o. materials into i.t.a.). "I" was the only capital latter represented on the cards. Otherwise, all capital letters written by any Ss were converted into lower-case letters. Thus, by looking at the 4-by-6 cards prepared in this manner, judges had no way of determining whether an S wrote originally in i.t.a. or in t.o.

All punctuation marks were represented on the cards exactly as they appeared on the samples. Cards were rated using a 5-point scale, with 5 as the highest score and 1 as the lowest score. Fundamentally, the main emphasis in the rating was in evaluation of communication of meaning.

There were 4 judges. They were asked to apply the 10 criteria listed below to their ratings. But the judges were cautioned not to try to find evidence of all the criteria in each sample. Emphasis was to be placed upon a quick impression with these criteria in mind.

The criteria given to the judges were these: *

1. Meaningfulness of communication
2. Overall length
3. Length of sentences used
4. Use of elaborated sentences
5. Complexity of words used
6. Variety of words used
7. Imagination and originality, "flavor"
8. Use of adjectives and adverbs
9. Use of subordinate clauses
10. Evidence of complete thought, e.g. subject-verb-complement

The judges were given the following examples as general guides to their decisions. Judges were warned that each rating represented a range of ability rather than a fixed point.

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* These criteria were determined following an examination of criteria used and found useful in related studies. Shire studied oral expressions of first-grade pupils given an opportunity to speak freely in a carefully controlled experimental situation (1945). She studied the relationship of linguistic expression with reading. She reports, "The phase of sentence structure correlating highest with reading ability, whether it be silent or oral, is the elaborated sentence" (p. 133). She also reports that useful indices of linguistic maturity are: total number of words used, number of different words used, average length of response, and use of words as various parts of speech. Complete sentences served as further example of relationship with reading ability.

Other studies of writing and oral expression with pupils of different ages reflect the use of such criteria as some of those used in this study: (Bear, 1939; Frogner, 1933; Watts, 1944; McClelland, 1956; Strickland, 1962; Barnes, 1964; Diederich).

However, in using any criteria to evaluate so complex and personal expression, a good deal of caution is advised. Strickland advises that no one type of evaluation can really serve (1960). Russell stresses the intricate interrelationship of language expression and personality (1953). Over forty years ago, Monroe warned of the unreliability of the measurements in written composition (1923). And more recently Greene has warned that an accurate analysis of language has not been made so that the only use which can be made of a general nature (1950).

Examples given to the judges to show a score of 1 were these:

I        to see
mother
patsy I see

I ederie a eleiredb.
I can to the cleiredb.
I flene cleieedbederie.

Judges were given the following cards representing the range of quality of communication to be rated 2:

I ov I have a new horse
I my I my horse

what I like to do I like to play,
and ran and ray and a car.  I like

this is a farm
this is a cat
this is a cow
this is a horse
this is a duck
this is a rooster
this is a chicken
this is a lamb
this is a dog
this is the people

Cards with these expressions were given to the judges for suggested ratings of 3:

I would like to be a
doctor, do you know what a.
doctor can do. well I'll tell
you a doctor wrs and takes
care of people.

I like clowns
clowns can be funny clown
I like clown
clowns can be magic
the end

see kenneth and keith
kenneth said the toys like boy.
toys are not for fos to play with.
keith can play here in the yard.
keith can play in the yard.
mother says I want keith and kenneth.

I see a leprechaun
oh now I see the tree
moving now I see a
flower moving it is dancing
bob is thinking is it was funny
he's thinking that the
magic is nice

The judges used these as examples of the rating, 4:

grownups age
I would like to be a veterinarian
and I had a turtle but there is a
story about it and this is how it goes.
I found a turtle one day when I was
in the woods I brought it home and
the shell broke and I felt
very sad and that made me
think of being a veterinarian
and he died and it ended very
sad

the school bus
now we are crashed
into the lake help
save me. then a
navy ship came
to the rescue.
we were so
proud of the
sailors that
all the girls kissed
them.
the end

I would like to be a teacher
because you can come
a very smart
person. when you give
order to all of the people.
and you can boss a lot of
kids when you are a teacher.

Finally, for examples of a rating of 5, cards with these stories were given to the judges:

the rocket is delayed.
it maybe is going
to blast off but we
do not know. I would
like to see it over and
over again I would like
to watch it all night and
all day
the astronauts
names are gus grissom
and john young
if I was in that capsule
I would get
space sick on that space
capsule
One of the valves was leaky.
it will land I think
very soon. they are not
afraid. they use flash
lights to see and if you
were very smart enough you
would take a
camera.
we turned it on now
the capsule was being
in the air an hour. I
did not tell you it went up
more than an hour it
had gone around the
earth one time

this is a story
about a gorilla family.
once upon a time
there lived a gorilla
family. they lived on
an underground mountain.
and it was very spooky!!
then their mother thought
about going to
germany. mother s
said "pack! up" then
they started to
go then they got on
the boat. help!!! help!!!
said the people. they
jumped off the boat.
into the water
then they got off
the boat. they were
in germany they
wanted to
live there. and
a man said
yes. and they
lived happily ever
after
the end

One of the judges read and rated all the cards. Three other judges each ranked a randomly selected group of 320 cards. Correlations of the judges' ratings were computed. Results are presented in Chapter Four. The ratings of the judge who read all the data were used for the comparisons between the experimental and control groups. These results, too, are presented in Chapter Four.

After the rating of communication on the cards was completed, one judge rated the original samples in terms of the legibility of handwriting. A 3-point scale was used. Ratings were made using four criteria: uniformity of slant, uniformity of alignment of letters, spacing between letters, and appropriateness of form.

### Analysis of Covariance on Initial and Final Scores

In addition to testing the hypotheses by using the t-test statistic to compare the means of the scores gained on the measures indicated above, the analysis of covariance as described by Dyer and Schrader (1960) was applied to the initial and final scores. This method permits the experimenter to examine the relationships among the respective measures. The results of the use of this statistic are presented in Chapter Four.

### Data from Three Additional Schools

Three additional schools were associated with this study. In these schools one teacher taught an i.t.a. class and another teacher taught the t.o. class. Data from these schools are also presented in Chapter Four.

## PROCEDURES FOR SECURING AND TREATING DATA FROM A SMALL SELECTED SAMPLE OF INDIVIDUAL SUBJECTS

An attempt was made to secure data from a small sample of Ss from the seven schools participating in the main part of this study. Four schools were chosen in which to conduct interviews and observations. One of the schools was located in a stable, suburban community. Another school was located in a rapidly growing community. The school in the rural community and a city school also provided Ss to be interviewed and observed. These schools provided a cross-section of the socioeconomic status of the communities in which the seven schools were located.

### Criteria for Selecting Ss

An attempt was made to create comparable selected populations. Children of varying ability within each class were sought. As much as possible, specific Ss were matched according to the criteria listed below. Eight out of ten very close matchings of the criteria were necessary for a pair to be created. The remaining two criteria had to be somewhat close. The criteria were:

1. Sex
2. Chronological age
3. Scores gained on the CTMM
4. Scores gained on the LCRRT
5. Socioeconomic status of family, as reflected in the questionnaires
6. Opportunities for reading readiness experiences at home as reflected in the questionnaires
7. Kindergarten teachers' prediction of reading success
8. Placement, in relation to other children in family
9. Six drawings, made by Ss
10. Teachers' advice

Data for emplying these criteria were gained from the tests and questionnaires used to gain data from the total population.

The six children's drawings were secured from all pupils in the eight experimental and control classes of the four selected schools according to specific directions given to researchers. These directions (See Appendix) were adapted for use with groups in this study from directions created by Machover for gaining drawings from individuals (1951). Ss were further matched with respect to personal qualities revealed in these drawings. The matching was done by a consulting clinical psychologist, a specialist in the interpretation of figure drawings. The following criteria were used in matching personality of pairs of Ss from the selected experimental and control classes:

1. Emotional maturity
2. Organization and integration
3. Proportion
4. Significance of body detailing
   a. Hands
   b. Fingers
   c. Arms
   d. Legs
   e. Neck
   f. Face
   g. Eyes (blacked out, looking away, etc.)
5. Use of clothing
6. Placement of drawing on page
7. Orientation of figure in space
8. Size of figure

## The Data

Data secured for the entire population were, of course, available for the small selected sample of Ss. In addition to those data, more data were acquired. The added data were gained in the following sources:

1. Five observations and interviews of each selected S over the course of the school year (See Appendix selected for Observation and Interview Guides)
2. Gilmore Oral Reading Test
   (Accuracy and Rate were measured)

In addition, all selected Ss were tested with the Wechsler Intelligence Scale for Children. Finally, all the teachers of these Ss were interviewed (See Appendix for Interview Guide).

Observations and interviews. Each of the selected Ss was observed and interviewed five times in the course of the school year. Each S was observed and interviewed by each of three different interviewers.

Interviewers followed the Interview Guide but used their judgement in broadening the parameters of the interview. Interviewers worked with the belief that no answer, or an incomplete answer, or an ambiguous answer was preferable to an answer into which the S might have been led.

The first two interviews actually consisted of at least two shorter interviews. The first was the picture interview. It directed attention to a picture and the S was asked to talk about the child (or the children) shown in the respective pictures. The second part of each interview was a focused interview as described by Merton, Fiske, and Kendall (1956). Ss were directed to focus their attention on the reading lesson which always preceded an interview. By means of structured and unstructured stimuli Ss were asked to focus upon the reading lesson episode and to relate their retrospections.

The opinion interview was added at the third interview. In the opinion interview the Ss were asked what they thought reading is and what they thought of themselves as readers. At the end of the final interview Ss were asked how the alphabet used in their class differed from the one used in the other class.

Observations and interviews were conducted at the same time of the school day in each experimental and control class. For example, if observations and interviews were conducted in an experimental class the first part of the school day, then observations and interviews in the control class were conducted that same time of the day.

Observations and interviews were conducted in the experimental classes within a week of the time when they were conducted in the respective control classes. Teachers were asked, whenever possible and as much as possible, to conduct the same kind of lesson for the experimental and control class during the observations. One, two, or three members of the research team observed the classrooms at a time. The interviews were conducted outside of the classrooms and were all tape-recorded. The interviews were later transcribed.

The Chi-square statistic was used to compare the distribution of kinds of responses to questions given by Ss of the experimental and control populations.

Gilmore Oral Reading Test. All the selected Ss were tested by the researchers at the end of the school year. The test was presented in its usual form in t.o. Directions in the manual were followed. The t-test statistic was used to compare means of scores gained by the selected Ss for Accuracy and Rate.

## SUMMARY

This chapter has consisted of a presentation of the procedures used to organize the study, to gather the data, and to treat the data. Procedures for handling the data secured from the total population and procedures for handling data secured from a selected sample of Ss from four schools were described. Data gained by using these procedures are presented in the following chapter.

# CHAPTER FOUR

# RESULTS

Data are presented first for the entire population. These data are in the form of scores gained by Ss on three standardized tests and in the form of judges' ratings of writing samples. Following this presentation, the qualitative data gained for the small selected sample are given.

## DATA ON THE TOTAL POPULATION

This section begins with a description of the communities, the schools, and the personnel as revealed by questionnaires. Following this are presented the initial data used to determine how well matched the total experimental and control populations were. Next, there is a presentation of the data on the dependent variables. These data deal directly with the hypotheses specified in Chapter One. There is then a presentation of results derived from analysis of covariance performed with scores of the initial and final tests. Finally, some extra data from the three additional schools are also introduced.

### General Description of the Communities, the Schools, Teachers, and Ss

Three questionnaires as described in Chapter Three were used. One questionnaire brought information about the communities, the schools, the library facilities, and the teachers. The population of communities ranged from 1,200 in the rural village to over 114,000. The range in the number of pupils in the entire school district (including High School) was from 400 to over 18,000. The smallest number of first-grade classes was 2. (less than 2 would not have been possible in this study). In the largest school there were six first grades. The length of the school day varied only from 5 to 5 1/2 hours. The school year ran for 180 to 186 days. The entrance age for all the schools was about 6.

There was a wide range in the kinds of library services available to the pupils. A city school and the rural school were serviced by a bookmobile. Some schools had a trained librarian, others did not. Several of the schools had libraries in the schools. In most of these schools the library times were scheduled.

The total years of teaching experience varied from 2 years to 24. One teacher was teaching in the first grade for the first time. The teacher with the greatest number of years of first-grade teaching experience had spent her entire career of 17 years teaching at this grade level.

The parents' questionnnaires showed that there existed a wide range of early experiences commonly thought by educators to be associated with helping pupils be ready for reading. In some communities children enjoyed books, went on trips, played word games, asked questions, read highway signs, etc. In the less favored homes the questionnaires revealed few of these experiences. There was a clear indication that these pre-reading opportunities were directly proportional to socioeconomic status.

Socioeconomic status of the pupils is reflected by other data gained. Table I indicates the range of Ss' parents' occupations. In the instances where no father was present, the mother's job was indicated if she had one. While no formal statistical treatment was made of these incomplete data, it can be seen that there were more parents with the more prestigeous jobs in the relatively wealthier communities where Schools I, II, III, and VI were located. It can also be seen that the parents of the city children in School V and School VII tended to hold more menial jobs. The data also show that there was a fairly even distribution of children in the experimental and control groups according to parents' occupations.

## Initial Data

The kindergarten teachers' questionnaire was culminated by the kindergarten teachers' predictions. The results of these predictions are shown in Table II. This table shows that there was no significant difference between the total experimental and control groups with respect to the predictions made by kindergarten teachers. Table II also shows that there were no significant differences between the scores of the total experimental population as compared to the scores of the total control population according to scores gained on the CTMM and the LCRRT. The t-test statistic was used for these comparisons as well as those that follow.

The data in Table III are also added to the category of initial data although the data were gained at the end of the school year when the entire STAN-W was administered. The data in Table III also lead to the suggestion that the experimental and control groups probably had been drawn from the same population with respect to academic ability.

## Data on the First Hypothesis

The remaining data presented in this chapter deal with the outcomes of the experiment. In Chapter One the first hypothesis was defined as follows:

> There will be no significant difference between the means of experimental and control groups with respect to scores gained on tests with the experimental group tested with a test transliterated into i.t.a. and the control group tested by the same test in t.o.

## TABLE I

## DISTRIBUTION OF PARENTS' OCCUPATIONS BY PERCENTS

| Type of occupation: | | Executive & supervisory | Professional | Proprietary & sales | Technical, craft & mechanical | Protective, transportation, service, & clerical | Laborer | Unemployed |
|---|---|---|---|---|---|---|---|---|
| Group: | | | | | | | | |
| School | I exp | 33.3* | 33.3 | 28.6 | 4.8 | 0.0 | 0.0 | 0.0 |
| | con | 45.4 | 36.4 | 13.6 | 4.5 | 0.0 | 0.0 | 0.0 |
| | II exp | 39.1 | 13.0 | 30.5 | 17.4 | 0.0 | 0.0 | 0.0 |
| | con | 32.0 | 32.0 | 16.0 | 12.0 | 8.0 | 0.0 | 0.0 |
| | III exp | 24.2 | 13.8 | 20.4 | 17.2 | 17.2 | 6.9 | 0.0 |
| | con | 13.3 | 23.3 | 16.7 | 36.7 | 6.7 | 3.3 | 0.0 |
| | IV exp | 12.5 | 0.0 | 25.0 | 50.0 | 0.0 | 12.5 | 0.0 |
| | con | 11.1 | 0.0 | 22.2 | 44.4 | 11.1 | 11.1 | 0.0 |
| | V exp | 5.3 | 0.0 | 21.0 | 26.3 | 10.5 | 31.6 | 5.3 |
| | con | 4.3 | 4.3 | 4.3 | 4.3 | 26.1 | 39.1 | 17.4 |
| | VI exp | 25.0 | 35.7 | 10.7 | 21.4 | 7.1 | 0.0 | 0.0 |
| | con | 13.0 | 34.8 | 13.0 | 17.4 | 21.8 | 0.0 | 0.0 |
| | VII exp | 0.0 | 0.0 | 3.9 | 11.5 | 15.4 | 57.7 | 11.5 |
| | con | 0.0 | 0.0 | 0.0 | 31.6 | 15.8 | 42.1 | 10.5 |

* Because of the necessity of rounding off numbers in finding percents, the percents do not always equal 100 percent exactly. This is true in this table and others which follow where percents are shown.

## TABLE II

## SCORES GAINED ON THREE INITIAL MEASURES

| Initial measure: | Group | N | Mean total raw score | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|---|
| CTMM | Total exp | 169 | 39.7870 | 8.02 | 1.01 | n.s. |
| | Total con | 150 | 40.6933 | 7.93 | | |
| LCRRT | Total exp | 164 | 53.6768 | 8.98 | .16 | n.s. |
| | Total con | 150 | 53.5067 | 10.05 | | |
| Kind. tchrs' predict | Total exp | 140 | 6.0571 | 1.95 | .49 | n.s. |
| | Total con | 122 | 6.1885 | 2.28 | | |

## TABLE III

## GRADE SCORES GAINED ON THE STAN-W, ARITHMETIC SECTION

| Group | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|
| Total exp | 169 | 20.0888 | 6.60 | .02 | n.s. |
| Total con | 168 | 20.1012 | 6.33 | | |
| School: | | | | | |
| I exp | 24 | 23.1250 | 5.14 | .77 | n.s. |
| I con | 25 | 24.2800 | 5.19 | | |
| II exp | 25 | 26.5600 | 6.66 | .69 | n.s. |
| II con | 25 | 27.7200 | 4.95 | | |
| III exp | 29 | 19.9655 | 4.48 | .36 | n.s. |
| III con | 27 | 19.5555 | 3.83 | | |
| IV exp | 21 | 19.7143 | 5.42 | 1.44 | n.s. |
| IV con | 21 | 17.5714 | 3.87 | | |
| V exp | 21 | 14.7143 | 3.52 | .79 | n.s. |
| V con | 20 | 15.6500 | 3.88 | | |
| VI exp | 28 | 22.3214 | 4.50 | .25 | n.s. |
| VI con | 24 | 22.0000 | 4.38 | | |
| VII exp | 21 | 11.8571 | 3.44 | 1.29 | n.s. |
| VII con | 26 | 13.0385 | 2.47 | | |

Table IV contains results relating to this hypothesis. Whole numbers, 22, 19, etc., are used in the STAN-W for grade scores. Using whole numbers to indicate scores gained by Ss, the difference in mean scores for the total experimental and control groups is 2.8079. This difference, the table indicates, is not to be attributed to chance. The results suggest that for the total population the null hypothesis may be rejected at the .01 level of confidence.

Table IV also demonstrates that within three schools the experimental classes gained significantly higher scores than did the control classes in the same schools.

Table V offers data on each of the five language arts sections of STAN-W, The mean score of the total experimental group was significantly higher in three areas, Word Reading, Word Study, and Spelling.

Among the seven individual schools there were four experimental classes that gained significantly higher scores on Word Reading. Threeof these were the same classes that gained significantly higher median scores, as was shown earlier in Table IV.

On Paragraph Meaning one experimental class scored significantly higher. This class was significantly higher on both median score and Word Reading. One control class gained a significantly higher score on Paragraph Meaning. On the Vocabulary section none of the differences could be considered not to have been caused by chance. Experimental classes in three schools gained significantly higher scores in Word Study. In Spelling two experimental classes gained significantly higher scores.

Summarizing Table IV and Table V we see that the mean of the median scores was higher in favor of the experimental population. The total experimental group was significantly higher in Word Reading, Word Study, and Spelling. Experimental classes in three schools also showed significantly higher means of median scores. In School III the experimental group was higher for median scores and for four individual sections of the test. The experimental group was significantly higher in School II for the median score as well as for three individual sections of the test. In one school there were two occasions in which an experimental class was significantly higher. One experimental and one control class had a statistically higher score in one section. For two schools there were no statistically significant results on this test.

Table VI gives the data in another way. Here Ss' scores are not given by schools. Scores on the STAN-W are presented in populations created in terms of scores originally gained on the CTMM. There are no significant differences between experimental and control populations which originally scored 45 or higher or 34 and under on the CTMM. Significant differences on the STAN-W were gained by the experimental boys and the experimental girls who gained raw scores between 35 and 44 on the CTMM.

## TABLE IV

## MEDIAN GRADE SCORES GAINED ON THE STAN-W

| Group | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|
| Total exp | 169 | 22.2012 | 7.87 | 3.53 | .01 |
| Total con | 150 | 19.3933 | 6.24 | | |
| **School:** | | | | | |
| I exp | 24 | 26.9167 | 6.98 | 1.40 | n.s. |
| I con | 19 | 24.0000 | 6.38 | | |
| II exp | 25 | 29.9200 | 5.75 | 2.26 | .05 |
| II con | 24 | 25.6250 | 7.09 | | |
| III exp | 29 | 26.6897 | 4.98 | 5.10 | .01 |
| III con | 27 | 19.2222 | 4.86 | | |
| IV exp | 21 | 19.7619 | 5.69 | .29 | n.s. |
| IV con | 17 | 19.1765 | 6.17 | | |
| V exp | 21 | 14.4762 | 4.89 | .19 | n.s. |
| V con | 18 | 14.2222 | 3.42 | | |
| VI exp | 28 | 20.6786 | 5.67 | 2.13 | .05 |
| VI con | 22 | 17.6364 | 4.25 | | |
| VII exp | 21 | 13.6190 | 2.06 | 1.06 | n.s. |
| VII con | 23 | 14.2609 | 1.85 | | |

TABLE V

MEANS OF GRADE SCORES GAINED ON EACH OF FIVE SECTIONS OF THE STAN-W

| Group | Word reading | Paragraph meaning | Vocabulary | Word study | Spelling |
|---|---|---|---|---|---|
| Total exp | 22.83 * | 18.05 | 23.05 | 30.95 * | 20.47 ** |
| Total con | 18.29 | 18.02 | 21.81 | 22.47 | 18.13 |
| School: | | | | | |
| I exp | 27.79 * | 23.12 | 29.04 | 37.75 | 26.58 |
| con | 22.68 | 22.64 | 25.08 | 30.84 | 25.60 |
| II exp | 30.80 * | 24.52 | 31.24 | 43.60 * | 28.36 ** |
| con | 22.20 | 23.08 | 30.92 | 32.48 | 25.08 |
| III exp | 26.83 * | 22.28 * | 23.88 | 36.90 * | 26.86 * |
| con | 17.70 | 17.04 | 23.81 | 20.81 | 20.11 |
| IV exp | 20.19 | 15.90 | 20.48 | 26.90 | 17.57 |
| con | 19.38 | 17.52 | 19.48 | 20.62 | 18.76 |
| V exp | 15.81 | 9.33 | 16.19 | 18.76 | 8.71 |
| con | 14.30 | 14.95 * | 14.20 | 15.55 | 9.85 |
| VI exp | 20.86 ** | 17.07 | 24.04 | 31.50 * | 18.71 |
| con | 17.46 | 17.33 | 23.25 | 21.62 | 14.92 |
| VII exp | 13.95 | 10.86 | 13.57 | 15.38 | 12.24 |
| con | 13.88 | 13.15 | 14.27 | 14.11 | 11.04 |

* Higher at the .01 level of significance
** Higher at the .05 level of significance

## TABLE VI

MEDIAN GRADE SCORES GAINED ON THE STAN-W BY POPULATIONS OF BOYS AND OF GIRLS DETERMINED BY INITIAL SCORES ON THE CTMM

| Group | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|
| Scores on CTMM | | | | | |
| 45 and over | | | | | |
| Boys exp | 25 | 25.2400 | 6.40 | 1.49 | n.s. |
| Boys con | 31 | 22.4516 | 7.30 | | |
| Girls exp | 28 | 28.4643 | 6.65 | 1.87 | n.s. |
| Girls con | 24 | 24.8333 | 7.02 | | |
| 35-44 | | | | | |
| Boys exp | 44 | 22.1818 | 7.53 | 2.65 | .01 |
| Boys con | 27 | 18.0370 | 5.47 | | |
| Girls exp | 29 | 23.0000 | 6.73 | 2.37 | .05 |
| Girls con | 28 | 19.1071 | 5.37 | | |
| 34 and under | | | | | |
| Boys exp | 21 | 14.7619 | 5.04 | .76 | n.s. |
| Boys con | 24 | 14.6667 | 2.61 | | |
| Girls exp | 22 | 16.8636 | 5.74 | 1.90 | n.s. |
| Girls con | 16 | 13.8125 | 1.94 | | |

## Data on the Second Hypothesis

Data on the second hypothesis were gained from two tests, STAN-X and CRT. The second hypothesis was this:

> There will be no significant difference between the means of experimental and control groups with respect to scores gained on tests with all Ss taking the tests in t.o.

The STAN-X was taken near the 160th day of instruction, roughly a month after the STAN-W had been administered. The null hypothesis must be accepted for the total population. Table VII shows that there was no significant difference between the means of the median scores on the STAN-X gained by the total experimental and control groups. School VII scores were significantly higher at the .01 level in favor of the control class.

Table VIII shows means of scores gained on the language sections of the STAN-X. Two comparisons give the advantage to the experimental class in School III. These are in Word Reading and Word Study. On the other hand, Table VIII shows that for four comparisons, scores favor the control population. These comparisons with significant differences fall in Spelling for the entire control population and Spelling for the control classes in School I, School IV, and School VII. Thus, the experimental class in School III continued to gain significantly higher scores. Three classes and the total control population were significantly higher in the Spelling section.

Table IX shows with STAN-X scores what Table VI displayed earlier with the STAN-W scores. That is, scores are presented irrespective of Ss' schools but by populations created by CTMM scores. Unlike Table VI, however, Table IX shows that none of the differences can be accounted for except by chance.

Shortly after the STAN-X was administered, the CRT was given to all Ss. Again, all Ss took the test in t.o. Results for the CRT are presented in three tables, Table X, Table XI, and Table XII.

Table X indicates that there is no significant difference between the means of the total scores of the entire experimental and control populations on the CRT. Only in School VII is a statistically significant finding seen. The mean for the control group was higher at the .01 level of significance.

Table XI shows the means of grade scores gained on the Reading Vocabulary and Comprehension parts of the CRT. There were no significant differences between the means of any comparable experimental and control groups. Similarly, Table XII indicates that no significant differences existed between means of scores gained by groups determined by initial scores gained on the CTMM.

## TABLE VII

## MEDIAN GRADE SCORES GAINED ON THE STAN-X

| Group | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|
| Total exp | 170 | 20.3706 | 7.12 | .44 | n.s. |
| Total con | 151 | 20.7218 | 7.04 | | |
| School: | | | | | |
| I exp | 24 | 22.7083 | 6.55 | 1.19 | n.s. |
| con | 19 | 25.1579 | | | |
| II exp | 25 | 28.5600 | 7.76 | .23 | n.s. |
| con | 24 | 28.0833 | 6.09 | | |
| III exp | 29 | 23.6209 | 5.52 | 1.27 | n.s. |
| con | 26 | 21.6923 | 5.53 | | |
| IV exp | 20 | 18.8000 | 5.62 | .94 | n.s. |
| con | 17 | 20.5882 | 6.51 | | |
| V exp | 22 | 14.7727 | 3.94 | .13 | n.s. |
| con | 18 | 14.9444 | 4.22 | | |
| VI exp | 28 | 18.9286 | 1.75 | .32 | n.s. |
| con | 22 | 19.3182 | 5.76 | | |
| VII exp | 22 | 13.0909 | 1.59 | 2.94 | .01 |
| con | 25 | 14.7600 | 2.20 | | |

## TABLE VIII

### MEANS OF GRADE SCORES GAINED ON EACH OF FIVE SECTIONS OF THE STAN-X

| Group | Word reading | Para-graph meaning | Vocab-ulary | Word study | Spelling |
|---|---|---|---|---|---|
| Total exp | 20.02 | 19.47 | 24.06 | 24.95 | 15.82 |
| Total con | 18.92 | 19.62 | 23.53 | 23.90 | 19.38 * |
| School: | | | | | |
| I exp | 21.62 | 20.75 | 27.58 | 28.25 | 19.67 |
| con | 22.62 | 24.08 | 26.71 | 32.37 | 26.87 * |
| II exp | 27.20 | 27.28 | 33.88 | 34.36 | 24.04 |
| con | 24.56 | 23.60 | 35.32 | 34.80 | 26.88 |
| III exp | 24.45 ** | 23.38 | 23.93 | 29.90 ** | 20.59 |
| con | 19.11 | 21.69 | 24.15 | 21.85 | 19.92 |
| IV exp | 18.00 | 18.40 | 22.30 | 22.20 | 14.55 |
| con | 18.86 | 19.62 | 19.90 | 23.24 | 22.71 * |
| V exp | 14.36 | 12.68 | 20.14 | 15.86 | 7.14 |
| con | 15.06 | 13.55 | 16.40 | 15.95 | 8.80 |
| VI exp | 19.25 | 17.86 | 23.46 | 25.11 | 15.54 |
| con | 17.80 | 18.64 | 25.00 | 23.08 | 16.36 |
| VII exp | 12.77 | 13.86 | 15.54 | 14.18 | 6.18 |
| con | 14.00 | 14.85 | 15.61 | 15.08 | 13.04 |

* Higher at the .01 level of significance
** Higher at the .05 level of significance

## TABLE IX

### MEDIAN GRADE SCORES GAINED ON THE STAN-X BY POPULATIONS OF BOYS AND OF GIRLS DETERMINED BY INITIAL SCORES ON THE CTMM

| Group | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|
| Scores on CTMM | | | | | |
| 45 and over | | | | | |
| Boys exp | 22 | 23.5909 | 5.46 | .87 | n.s. |
| Boys con | 31 | 25.0969 | 6.76 | | |
| Girls exp | 30 | 25.3000 | 7.30 | .47 | n.s. |
| Girls con | 24 | 26.2083 | | | |
| 35-44 | | | | | |
| Boys exp | 44 | 20.9318 | 7.61 | .93 | n.s. |
| Boys con | 26 | 19.3846 | | | |
| Girls exp | 31 | 21.3548 | 5.33 | .51 | n.s. |
| Girls con | 28 | 20.5000 | 7.08 | | |
| 34 and under | | | | | |
| Boys exp | 22 | 13.5909 | 2.76 | .01 | n.s. |
| Boys con | 25 | 15.0400 | 2.68 | | |

## TABLE X

## TOTAL RAW SCORES GAINED FOR TOTAL READING ON THE CRT

| Group | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|
| Total exp | 169 | 60.4852 | 6.29 | .58 | n.s. |
| Total con | 150 | 61.7400 | 5.91 | | |
| School: | | | | | |
| I exp | 24 | 68.9167 | 11.71 | 1.43 | n.s. |
| con | 19 | 74.2105 | 11.77 | | |
| II exp | 25 | 75.8000 | 9.70 | .23 | n.s. |
| con | 24 | 75.1250 | 10.52 | | |
| III exp | 28 | 73.2857 | 12.70 | .98 | n.s. |
| con | 25 | 69.8800 | 12.11 | | |
| IV exp | 20 | 59.2000 | 19.18 | .41 | n.s. |
| con | 17 | 61.4706 | 13.40 | | |
| V exp | 22 | 40.0454 | 16.81 | .24 | n.s. |
| con | 18 | 41.3333 | 16.55 | | |
| VI exp | 28 | 62.3214 | 13.20 | .24 | n.s. |
| | 22 | 61.1364 | 19.30 | | |
| VII exp | 22 | 36.8636 | 13.54 | 2.03 | .05 |
| | 25 | 46.6800 | 14.45 | | |

## TABLE XI

## MAANS OF GRADE SCORES GAINED ON EACH OF TWO SECTIONS OF THE CRT

| Group | Reading vocabulary | Comprehension |
|---|---|---|
| Total exp | 2.11775 | 1.65917 |
| Total con | 2.12635 | 1.77126 |
| School: | | |
| I exp | 2.31667 | 2.08333 |
| con | 2.65200 | 2.38400 |
| II exp | 2.83200 | 2.23200 |
| con | 2.65600 | 2.28400 |
| III exp | 2.58571 | 2.09286 |
| con | 2.41600 | 1.98400 |
| IV exp | 2.00500 | 1.70000 |
| con | 1.95714 | 1.92857 |
| V exp | 1.44545 | .7500 |
| con | 1.49500 | .74500 |
| VI exp | 2.06071 | 1.76786 |
| con | 2.10417 | 1.96250 |
| VII exp | 1.34091 | .72727 |
| con | 1.50000 | 1.00000 |

TABLE XII

TOTAL RAW SCORES GAINED ON THE CRT BY POPULATIONS OF BOYS AND OF GIRLS DETERMINED BY INITIAL SCORES ON THE CTMM

| Group | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|
| Scores on CTMM | | | | | |
| 45 and over | | | | | |
| Boys exp | 21 | 70.0952 | 12.43 | .75 | n.s. |
| Boys con | 31 | 72.8064 | 12.76 | | |
| Girls exp | 30 | 74.4667 | 11.91 | .59 | n.s. |
| Girls con | 23 | 76.3478 | 10.87 | | |
| 35-44 | | | | | |
| Boys exp | 44 | 61.3182 | 17.92 | .42 | n.s. |
| Boys con | 26 | 59.4615 | 17.08 | | |
| Girls exp | 30 | 66.2667 | 13.30 | .54 | n.s. |
| Girls con | 27 | 64.2963 | 13.71 | | |
| 34 and under | | | | | |
| Boys exp | 21 | 37.8095 | 18.44 | 1.05 | n.s. |
| Boys con | 24 | 43.2917 | | | |
| Girls exp | 22 | 44.0000 | 18.70 | .51 | n.s. |
| Girls con | 18 | 46.8889 | | | |

## Data on the Third Hypothesis

Data on this hypothesis dealt with scores assigned by judges according to procedures detailed in Chapter Three. The third null hypothesis read as follows:

> There will be no significant difference between the means of experimental and control groups with respect to scores assigned by judges to writing samples.

The correlations gained by comparing ratings re: communication made by four judges working independently are shown below. All the correlations are significant at the .01 level.

| Judge | II | III | IV |
|---|---|---|---|
| I | .88 | .87 | .86 |
| II | | .86 | .86 |
| III | | | .86 |

To see a comparison with other measures, judges' ratings of writing samples and Ss' scores on the CTMM were correlated. The r gained was .64. By comparison, the correlations of scores on the tests of dependent variables with CTMM were: STAN-W .52; STAN-X .63; and CRT .64.

Table XIII shows the comparisons of scores assigned to 616 writing samples gained from the total population. This table indicates that the difference of means for the total experimental group was significantly higher at the .01 level. According to these data, the null hypothesis must be rejected.

For four individual schools the ratings were significantly higher in favor of the experimental classes. In School III the advantage again went to the experimental class, a continuation of the direction seen in data presented above. The experimental classes in School IV and in School VII gained significantly higher scores for the first time in the comparison of scores of outcomes described earlier in this chapter.

Handwriting of the writing samples was also judged according to the criteria defined in Chapter Three. One judge rated one sample from every S. The mean rating for 170 experimental group writing samples was 2.0000. The mean rating of 154 control group writing samples was 2.22773. A t-test was performed and the finding was in favor of the control group at the .01 level of significance. No other judges' ratings were used because of the researcher's feeling that no adequate way to compare handwriting using the two different alphabets had been defined.

## TABLE XIII

## RATINGS BY ONE JUDGE OF WRITING SAMPLES, RE: COMMUNICATION

| Group | N | Mean | S.D. | t-Ratio | Significance of difference |
|---|---|---|---|---|---|
| Total exp | 320 | 2.9969 | 1.10 | 4.53 | .01 |
| Total con | 296 | 2.5811 | 1.17 | | |
| **School**: | | | | | |
| I exp | 43 | 3.5116 | .759 | 1.85 | n.s. |
| con | 36 | 3.1914 | .776 | | |
| II exp | 47 | 4.0213 | .758 | .00 | n.s. |
| con | 48 | 4.0208 | .722 | | |
| III exp | 56 | 3.1786 | .826 | 2.72 | .01 |
| con | 52 | 2.7308 | .857 | | |
| IV exp | 37 | 3.0540 | 1.18 | 3.26 | .01 |
| con | 31 | 2.2903 | .682 | | |
| V exp | 45 | 2.0667 | .772 | 3.04 | .01 |
| con | 40 | 1.5750 | .972 | | |
| VI exp | 48 | 3.1250 | .857 | 3.38 | .01 |
| con | 41 | 2.4878 | .887 | | |
| VII exp | 44 | 1.9318 | .863 | 1.69 | n.s. |
| con | 48 | 1.6250 | .857 | | |

## Analysis of Covariance

An analysis of covariance (Dyer and Shrader, 1960) was used with each of the following sets of scores:

| Initial Score | | Final Score |
|---|---|---|
| CTMM | and | STAN-W |
| CTMM | and | STAN-X |
| CTMM | and | CRT |
| CTMM | and | Writing Samples |
| LCRRT | and | STAN-W |
| LCRRT | and | CRT |
| LCRRT | and | Writing Samples |

With the analysis of covariance as used in this study, one examines the relationships among the initial and final scores gained by the experimental and control groups. This method permits the experimenter to employ the scores of initial tests, used as measures of predition, and the final scores, used to compare instructional results in the experimental and control groups, to gain answers to three questions. Dyer and Schrader present the first question in this way:

> A. Are the errors of prediction greater as a whole in one group than in the other to an extent which cannot be attributed to chance (p. 6)?

The second question deals with the slope of lines formed by using the initial and final scores. It is necessary to determine whether there is a significant difference between the slopes of the lines of the experimental and control groups. The second question is stated thus:

> B. Is the line of relation steeper for one group than for the other (p. 6)?

The third question permits one to compare differences between the mean scores on tests of the dependent variables to see if the outcomes in the two populations are really different. The question is this:

> C. Is the distance between the two lines of relation significantly greater than zero (p. 19)?

If the results on Question A show that errors of prediction in one group differ significantly from those in the other group, then it is not possible to proceed to Question B. In the same way, Question B must be answered satisfactorily before proceeding to Question C. This prohibition is caused if there is a significant difference in the steepness of lines of relationships made by scores of the initial and final test considered in the analysis of covariance. This significant difference in the steepness of the lines of relationships would suggest that the effects of instruction differ for students of different abilities. Finally, with Question C are compared the means of the scores of the experimental and control groups on the tests of dependent variables. A significant difference here would indicate that the scores on dependent variables in one group are in all probability really different from the results gained by the other group and not to be attributed to chance.

Table XIV shows that twice it was not possible to proceed beyond Question A. On each occasion the STAN-W was involved as the final test. This is the test which had been transliterated into i.t.a. This is also the test which showed results in use of the t-test statistic in favor of the experimental group.

On all other treatments of data for Question A and Question B, there were no significant differences with respect to errors of prediction (A) or lines of relationship (B) permitting the final question about the differences between the groups in results of instruction to be put. The results confirm earlier data gained in the seven schools. For the STAN-X and the CRT there were no significant differences between the means of the experimental and control groups. STAN-X and CRT, it will be recalled, were taken in t.o. by the experimental group. Finally, when data on the writing samples were used in the analysis of covariance with the CTMM and LCRRT as predictors, it was found that the Questions A and B were satisfied effectively. It was found with Question C that the final results favored the experimental group at the .01 level of significance.

## Data Gained From Three Other Schools Associated with This Study

Data from three additional schools are introduced here.

These three schools are not to be confused with the small selected sample of individual Ss. The latter Ss were selected from the population dealt with above. The three schools discussed here constitute an addition to the seven schools described and discussed above. In two of the schools the traditional approach to educational experiments was followed from the beginning of the year. One teacher taught the experimental group. Another teacher taught the control group. The third pair of classes began the year with the plan of organization used by the seven schools. An unfortunate accident halfway through the school year to one of the teachers caused a change to the pattern wherein one teacher taught one class and another taught the other.

## TABLE XIV

## ANALYSIS OF COVARIANCE USING RESULTS OF INITIAL AND FINAL TESTS

| Initial test | Final test | Questions to answer | Value | Significance of difference |
|---|---|---|---|---|
| CTMM | STAN-W | A | - 2.5827* | .05 |
| | | B | not possible | |
| | | C | not possible | |
| CTMM | STAN-X | A | - .6484 | n.s. |
| | | B | - .3531 | n.s. |
| | | C | - .0321 | n.s. |
| CTMM | CRT | A | - .7405 | n.s. |
| | | B | - .5104 | n.s. |
| | | C | - .0319 | n.s. |
| CTMM | Writing samples | A | - 1.2163 | n.s. |
| | | B | - .3190 | n.s. |
| | | | -11.2288 | .01** |
| LCRRT | STAN-W | A | - 2.0080* | .05 |
| | | B | not possible | |
| | | C | not possible | |
| LCRRT | CRT | A | - .6722 | n.s. |
| | | B | - 1.1932 | n.s. |
| | | C | .1570 | n.s. |
| LCRRT | Writing samples | A | .0814 | n.s. |
| | | B | - .2184 | n.s. |
| | | C | - 6.6768 | .01 |

* A value of 2.882 or more is significant at the .01 level. A value of 1.668 is significant at the .05 level. The minus sign is ignored.

** Difference of the means of the final test were significant in favor of the experimental group.

It was felt that data gained from these associated schools might add interesting data to those gained from the experiment proper. It was found that there were no significant differences between means of scores gained initially by the i.t.a. pupils and t.o. pupils in these three schools on the CTMM and the LCRRT.

Table XV presents data from the STAN-W taken on or near the 140 day of instruction (give or take a week). The t-ratio for the difference between the means, with this total population is very high, far above the .01 significance value level. In all these schools differences between the mean scores are significant at the .01 level. This finding differs somewhat from that presented in comparing the experimental and control groups dealt with in the main part of this report, as shown in Table IV. Table IV shows that the total experimental population gained significantly higher scores. However, in four of the schools, taken separately, the differences between mean scores were not significantly different.

Table XVI shows that for the i.t.a. population the mean was significantly higher than the mean of the t.o. population on the STAN-X. In two of the three schools the i.t.a. class gained significantly higher means.

In Table XVII the difference between the mean of the total groups on the CRT is statistically significant at the .01 level. For one of the schools the difference is statistically significant at the .01 level.

Table XVIII shows data on writing samples from two of the three schools. It was not possible to use the data from School IX. For these two schools there appears to be a marked advantage in favor of both the total i.t.a. population and the i.t.a. class in each school.

Data presented earlier on writing samples in seven schools indicated an over-all advantage for the total experimental group but not every experimental class gained significantly higher scores. The mean of the total experimental seven school group was 2.9969 The combined mean for the two associated schools was 3.6635. The latter mean scores is significantly higher than the former mean score at the .01 level. Comparisons between the control group of the seven school group with these two t.o. classes showed no significant differences between the populations involved.

## TABLE XV

## MEDIAN GRADE SCORES GAINED BY PUPILS IN THE THREE ASSOCIATED SCHOOLS ON THE STAN-W

| Group | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|
| Total i.t.a. | 78 | 28.1795 | 6.05 | 10.08 | .01 |
| Total t.o. | 80 | 19.0750 | 5.18 | | |
| School: | | | | | |
| VIII i.t.a. | 25 | 24.9600 | 5.48 | 4.79 | .01 |
| t.o. | 29 | 18.3448 | 4.30 | | |
| IX i.t.a. | 22 | 30.8182 | 5.91 | 4.54 | .01 |
| t.o. | 22 | 21.8636 | 6.81 | | |
| X i.t.a. | 31 | 28.9032 | 5.41 | 9.42 | .01 |
| t.o. | 29 | 17.6897 | 3.47 | | |

## TABLE XVI

## MEDIAN GRADE SCORES GAINED BY PUPILS IN THE THREE ASSOCIATED SCHOOLS ON THE STAN-X

| Group | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|
| Total i.t.a. | 85 | 26.6588 | 6.89 | 7.38 | .01 |
| Total t.o. | 89 | 19.7416 | 5.24 | | |
| School: | | | | | |
| VIII i.t.a. | 26 | 21.8846 | 5.09 | 1.46 | n.s. |
| t.o. | 29 | 19.9310 | 4.57 | | |
| IX i.t.a. | 27 | 27.4074 | 6.76 | 3.91 | .01 |
| t.o. | 27 | 19.7778 | 7.32 | | |
| X i.t.a. | 32 | 29.9062 | 6.07 | 8.09 | .01 |
| t.o. | 33 | 19.5454 | 3.80 | | |

## TABLE XVII

### TOTAL RAW SCORES GAINED BY PUPILS IN THE THREE ASSOCIATED SCHOOLS ON THE CRT

| Group | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|
| Total i.t.a. | 78 | 76.1667 | 11.60 | 4.41 | .01 |
| t.o. | 80 | 67.4250 | 13.07 | | |
| School: | | | | | |
| VIII i.t.a. | 25 | 69.2400 | 11.85 | 1.15 | n.s. |
| t.o. | 29 | 65.4483 | 12.11 | | |
| IX i.t.a. | 22 | 77.8636 | 13.41 | 1.93 | n.s. |
| t.o. | 22 | 69.0455 | 16.10 | | |
| X i.t.a. | 31 | 80.5484 | 6.16 | 5.22 | .01 |
| t.o. | 29 | 68.1724 | 11.02 | | |

## TABLE XVIII

### RATINGS BY ONE JUDGE OF WRITING SAMPLES, RE: COMMUNICATION FOR PUPILS IN TWO OF THE ASSOCIATED SCHOOLS

| Group | | N | Mean | S.D. | t-ratio | Significance of difference |
|---|---|---|---|---|---|---|
| Total | i.t.a. | 107 | 3.6625 | .947 | 8.51 | .01 |
| Total | t.o. | 115 | 2.6000 | .907 | | |
| **School:** | | | | | | |
| VIII | i.t.a. | 52 | 3.1731 | .671 | 3.79 | .01 |
| | t.o. | 54 | 2.5926 | | | |
| X | i.t.a. | 55 | 4.1273 | .935 | 11.09 | .01 |
| | t.o. | 61 | 2.6066 | 1.06 | | |

## DATA GAINED FROM THE SELECTED Ss

In this section are presented data gained from two sources:

1. Interviews and observation
2. Gilmore Oral Reading Test
   (Scores were gained for Accuracy and Rate)

### Data from Observations and Interviews

Data were gained in five observations and interviews of each of 52 selected Ss.

In the picture interviews Ss responded in a highly personal way. When Ss were asked, "Do these children like to read?" Ss appeared to tell how they themselves felt. Some Ss said things like this, "Almost everybody in our reading group does. I guess they would too." Some Ss merely answered "Yes" to this question. When asked why this response was given, many replied, "'Cause I like to read" or "If I was them I would like to." Ss responded in a personal way when asked, "Do you think this child will be a good reader?" Most Ss said, "Yes." A few answered, "No." When Ss were asked why, their answers were such as these, "I'll be a good reader, I guess he will too" and "He's gonna learn in first grade." Two additional examples follow from protocols of Ss who gave personal responses but did not think the child in the picture would be a good reader, "He don't listen" and "He looks like me." The picture used in the fourth interview was one of children writing and drawing. When asked what these children were doing, one S responded in a personal way by saving, "Writing, how they are and how they feel." Thus, in the picture interviews the Ss talked about the children in the pictures but talked about themselves as well. Similarly, Ss focused upon and talked about their experiences during their reading lessons in a highly personal way during the focused interviews. Also, the protocols showed that while some Ss could not cope with the difficult questions put to them, in the opinion interview some of them did respond in highly personal terms.

Nonetheless, there were times when the protocols showed some semantic problems. While most Ss generally responded to the questions as the researchers expected they would, other Ss, however, gave perfectly good answers to questions but answers showing a different interpretation than originally had been intended.

In addition to the personal context of Ss' responses it was also found that Ss' responses agreed with observations made of them by members of the research team. In the course of the observed reading lessons each researcher made note of words which certain Ss had trouble with during the oral reading episodes. Later, in the focused interview Ss were asked if they remembered whether any words had been hard for them when they were reading aloud. Frequently, the Ss responses confirmed the researchers' observations. Melissa said, "I had trouble with 'want' and 'wants.' I had to figure it out." This is what had been observed. A part of the October 16 observation report on Blair reads, "When other children read aloud, he read along with them saying the words under his breath." Shortly afterward, Blair was interviewed. He was asked to focus on the small reading group when other children were reading aloud and to remember what he was thinking of when other children were reading. His response was, "I was felling how the words sounded and how you're supposed to read." During other observations some Ss were noted, say, to be looking at other parts of the room in the course of this kind of oral reading episode. Their responses in the focused interviews confirmed this. Other times observations of interpersonal difficulties with the teacher or other pupils were confirmed by the responses given to the interviews.

The protocals showed that these first-grade pupils seemed to accept both teachers as their teachers and that they were not confused by the system calling for switching teachers for different activities.

To prepare the data for comparing the populations, all the protocals were read to discover the categories in which the responses fell. Responses were then tabulated according to the categories.

Responses to some questions are not presented here. With some questions all the answers for all the Ss were essentially the same. With some other questions too few Ss responded at all. And with some other questions the kinds of responses were too ambiguous or too numerous so as to defy categorization. However, for some questions it was possible to see clearcut categories of responses. Data on these questions are presented.

"*Please tell me what he is doing with this book.*" * The first request by the interviewer in the picture interview was, "Please tell me what he is doing ....." There were two main categories of responses, "He's looking at it" and "He's reading."

Table XIX shows the percents of responses given in each category in the four interviews in which either a child or a group of children is shown holding a book. Data are presented as percents because Ss sometimes had been absent for a lengthy period of time when the interviews had been conducted and it had not been possible to schedule a make-up interview. Thus, the N varied from interview to interview. In order to attempt to keep the small population relatively even when any S in one population had been absent, data from his counterpart in the other population were not used for that particular interview. For each interview, then, there was a different N. N for these five interviews ranged from 38 to 52.

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* The Interview Guide in the Appendix indicates that "she" was used when the interviewed is a girl and "they" was used when there was a group in the picture.

Table XIX shows that as the year progressed a greater and greater proportion of the Ss responsed to the first query by saying, "He's reading." By May, when the fifth interviews were completed, Ss no longer said that the picture showed someone looking at a book.

The Chi-square statistic was used with the original tabulations to investigate differences between the Ss from the experimental classea as compared to the Ss from the control classes. For the first interview the Chi-square value was 4.08 which was significant beyond the .05 level. However, for the second, third, and fifth interviews, there were no significant differences. The Chi-square values were, respectively, 1.34, .44, and zero.

"What does he do if he doesn't know a word?" There was a wide range in the responses to this picture interview question. Some Ss said, "He'll be dumb" or "He'll get sent back to kindergarten," indicating perhaps some unhappy, punitive consequence that might befall the victim in the picture. Other Ss suggested a solution to this problem of not knowing a word by some form of avoidance such as this, "She'll just get some paper and color." Responses such as these three were tabulated in the "Skip, Quit, Be Punished, Be Dumb" category in Table XX.

Other responses were placed in the "Ask teacher or parent" category. Some Ss merely said, "Teacher." Others gave more expanded but probably no less personal responses as they responded. One S said, "Raise their hand and the teacher will ask them what do they want. And then they will ask the teacher what word was that and the teacher will tell her."

On the other hand, as the year progressed, more and more Ss suggested, "Sound it out." One S from the experimental population opined, "If he has our kind of alphabet, he'll sound it out." Table XX shows, however, that approximately the same proportion of control population Ss said "Sound it out" in each of the interviews as did Ss from the experimental population. From the first to the last interview for both the Ss of the experimental population and the Ss of the control population there was a small increase in the "Sound out" responses as well as an increase in the "Ask teacher or parent" response. There was also a reduction in the category of responses, "Make up a word, Study, Look at it."

The Chi-square statistic was applied to the number of responses given by the Ss of the experimental population as compared to the responses of the Ss of the control population. The Chi-square value was not significant for any of the five interviews. The values were, respectively, 6.24, 7.60, .68, 5.04, and 6.62 with five degrees of freedom.

## TABLE XIX

### PERCENTS OF RESPONSES TO "PLEASE TELL ME WHAT HE IS DOING"

| Categories: | | Looking | Reading |
|---|---|---|---|
| **Interview** | **Group** | | |
| 1 | exp | 52.7 | 47.3 |
| | con | 21.1 | 78.9 |
| 2 | exp | 16.0 | 84.0 |
| | con | 20.0 | 80.0 |
| 3 | exp | 5.0 | 95.0 |
| | con | 20.0 | 80.0 |
| 5 | exp | 0.0 | 100.0 |
| | con | 0.0 | 100.0 |

## TABLE XX

## PERCENTS OF RESPONSES TO "WHAT DOES HE DO IF HE DOESN'T KNOW A WORD?

| Categories: | | Sound out | Make up a word, Study, Look at it | Ask teacher or parent | Skip Quit, Be punished, Be dumb | Don't know | No answer |
|---|---|---|---|---|---|---|---|
| Interview | Group | | | | | | |
| 1 | exp | 10.5 | 15.8 | 36.9 | 15.8 | 15.8 | 15.2 |
| | con | 26.3 | 26.3 | 26.3 | 21.1 | 0.0 | 0.0 |
| 2 | exp | 20.0 | 0.0 | 68.0 | 4.0 | 4.0 | 4.0 |
| | con | 24.0 | 18.0 | 48.0 | 20.0 | 0.0 | 0.0 |
| 3 | exp | 35.0 | 5.0 | 55.0 | 5.0 | 0.0 | 0.0 |
| | con | 45.0 | 0.0 | 45.0 | 10.0 | 0.0 | 0.0 |
| 4 | exp | 40.9 | 0.0 | 50.0 | 0.0 | 4.5 | 4.5 |
| | con | 50.0 | 4.5 | 45.5 | 0.0 | 0.0 | 0.0 |
| 5 | exp | 34.8 | 0.0 | 65.2 | 0.0 | 0.0 | 0.0 |
| | con | 34.8 | 0.0 | 47.8 | 4.3 | 8.7 | 4.3 |

Responses made by the experimental population Ss in the first interview then were compared to their responses in the final interview. The differences in the responses were significant at the .01 level (Chi-square value equals 16.23). From Table XX it can be seen that all the responses in the final interview of the experimental group Ss fell either in the ' "Sound out" or "Ask teach or parent" category with the majority suggesting the latter course.

The control population Ss' reponses in the final interview were distributed somewhat more widely. Comparing the responses in the first interview with those of the final interview, the Chi-square value was 12.46. At five degrees of freedom, this value is significant at the .05 level.

It was further found that the Ss from the school situated in the economically improverished city neighborhood differed from the Ss in the other three schools in their responses to this question. In both the experimental and the control classes and with three different pictures, Ss were asked, "What does he do if he doesn't know a word?" A total of eighteen Ss had among them 73 different opportunities in the five interviews during the course of the year to reflect on this question. Although "Sound it out" was a relatively popular response in the three other schools, not one response of this kind was made by any S from either the experimental or control class. All but a few responses were in the "Ask teacher or parent" category. (Observations by members of the research team show, however, that the teacher engaged the pupils in both classes in appropriate formal and informal lessons on using sounds to find out what words are.) This finding and the fact that there were no significant differences between the experimental and control groups, lead to the suggestion that factors other than the alphabets used in the respective classrooms may have influenced the responses made to this question.

"How will he learn to read?" This question is very much like the one above and the data repeat the data presented above. Table XXI shows percents of responses to this question. Again, there is a slight increase from the first to the fifth interview in the "Sound out" response for both populations. Again there is an increase in the "Ask teacher or parent" response for both populations. As the interviews progressed, more Ss made responses of the "Study, look, or read" category and fewer Ss suggested that he might learn later, for example, "when he's a man" or "in the third grade."

Again there was no significant difference in the distribution of responses between the experimental and control populations for any of the four interviews in which this question was asked. (One question was asked about learning to write.) With six degrees of freedom, the Chi-square values were, respectively, for the four interviews, 10.98, 3.90, 3.42, and 4.92

## TABLE XXI

## PERCENTS OF RESPONSES TO "HOW WILL HE LEARN TO READ?"

| Categories: | | Sound out | Study, Look or read | Teacher or parent | Learn later | Listen | Don't know | No answer |
|---|---|---|---|---|---|---|---|---|
| Inter-view | Group | | | | | | | |
| 1 | exp | 4.2 | 16.6 | 29.2 | 16.6 | 0.0 | 4.2 | 29.2 |
| | con | 4.2 | 16.6 | 29.2 | 25.0 | 0.0 | 25.0 | 0.0 |
| 2 | exp | 16.0 | 40.0 | 24.0 | 4.0 | 8.0 | 8.0 | 0.0 |
| | con | 12.0 | 32.0 | 24.0 | 4.0 | 4.0 | 12.0 | 12.0 |
| 3 | exp | 33.3 | 38.8 | 11.1 | 5.6 | 5.6 | 5.6 | 0.0 |
| | con | 22.3 | 22.3 | 16.6 | 16.6 | 5.6 | 16.6 | 0.0 |
| 5 | exp | 15.0 | 40.0 | 25.0 | 5.0 | 0.0 | 5.0 | 10.00 |
| | con | 10.0 | 35.00 | 50.00 | 0.0 | 0.0 | 5.0 | 0.0 |

In comparing responses given in the first interview with responses given in the final interview, the Chi-square values were these: for the experimental group, 6.86, not significant and for the control group, 9.74, not significant.

Finally, here again, none of the selected Ss from the urban school noted above chose the "Sound out" category. It must be noted, however, that this response was not generally given as frequently by the rest of the Ss in the other schools as it was given on the earlier more specific question on what to do when one does not know a word. The city children continued to suggest that aid might be forthcoming to the child or children in the picture from outside sources. Most frequently, the response was given in one word thus, "Mother" "Teacher."

"Tell me about the story you were just reading." This request was made first in the focused interview. No attempt was made in this study to measure the amount of sparkle emanating from some Ss as they showed obvious enjoyment in retrospecting on the story they had just read. Nor was there any attempt to evaluate the dull recitation given by other Ss. Instead, a count was made of the words Ss actually used to tell about the story they had just read. Table XXII carries the mean number of words used by Ss in the four schools in all five interviews. In all four schools there was an average increase in the number of words used as the year progressed. It was also found as the year progressed, Ss told about the stories in more specific terms.

For the first interview it was possible to conduct focused interviews in only two schools. There was no significant difference between the experimental and control classes with respect to the number of words used to tell about the story. The Chi-square value was 1.75 with one degree of freedom. On the other hand, in the four remaining interviews the experimental group Ss used significantly more words than did the Ss from the control classes. The Chi-square values were 15.98 for the second interview, 15.41 for the third interview, 63.58 for the fourth interview, and 40.11 for the fifth interview. All these values were significant at the .01 level. These findings suggest that it is not impossible that the difference may have been caused by factors other than chance. Possibly the alphabets used created the differences, possibly there were other causes.

"Think back to when you were waiting for your chance to read aloud. Can you tell me what you were thinking about?" Table XXIII shows the percents of responses given in each category. In the "Anticipating" category were tabulated statements such as these:

## TABLE XXII

## MEAN LUMBER OF WORDS USED TO RESPOND TO "TELL ME ABOUT THE STORY YOU WERE JUST READING"

| | School: | I | III | IV | VII |
|---|---|---|---|---|---|
| Interview | Group | | | | |
| 1 | exp | 13.6 | -- | 4.0 | -- |
| | con | 22.0 | -- | 15.3 | -- |
| 2 | exp | 14.01 | -- | 10.6 | 27.6 |
| | con | 24.3 | -- | 3.7 | 6.7 |
| 3 | exp | 63.3 | 36.0 | 9.3 | 25.0 |
| | con | 88.3 | 36.0 | 37.6 | 18.7 |
| 4 | exp | 70.0 | 164.0 | 18.4 | 39.7 |
| | con | 70.5 | 28.0 | 27.5 | 17.0 |
| 5 | exp | 150.4 | 111.0 | 20.5 | 25.0 |
| | con | 137.1 | 30.7 | 23.0 | 40.0 |

I wanted to be the one who was reading.

I was patient.

I was hoping for two turns.

I waited while other children read.

I was mad 'cause I wasn't reading.

In the category "Thinking of other things," were placed statements like:

I was reading another story.

About home.

In the personal category were placed generalized responses like "Fine" or "O.K." as well as more explicit responses such as these:

I was tired of holding my hand up.

I was reading another story.

I was thinking if I could read good I could go to the higher group.

> Well, I was, you know sometimes if I like a boy who gits in a fight with me reads, I feel angry. But then, you know if Nancy, she's my friend, she. I feel O.K. because I know that after her, since Mrs. H. knows how much I like Nancy, the one that likes her reads after her. And that's what I felt.

Table XXIII does not appear to display any particular trends except that the control group Ss made more personal comments as the year progressed. In the first interview the Chi-square value was 15.25, significant at the .05 level with six degrees of freedom, indicating differences between the distribution of the responses of the two populations. Following this, however, there were no significant differences between the groups. With six degrees of freedom, the Chi-square values were, respectively, 5.18, 9.38, 10.5, and 11.36

For the experimental population there was no significant difference between the distribution of responses given in the first interview and the distribution of responses given in the final interview. The Chi-square value was 8.02. However, there was a significant change for the control group when the first and last interview responses were compared. The Chi-square value was 13.92, significant at the .05 level with six degrees of freedom.

TABLE XXIII

PERCENTS OF RESPONSES TO "THINK BACK TO WHEN YOU WERE WAITING FOR YOUR CHANCE TO READ ALOUD. CAN YOU TELL ME WHAT YOU WERE THINKING ABOUT?"

| Categories: Interview | Group | Antici-ipating | Follow-ing words | Follow-ing story | Think-ing of other things | Personal | Don't know | No answer |
|---|---|---|---|---|---|---|---|---|
| 1 | exp | 15.8 | 5.3 | 26.3 | 0.0 | 26.3 | 26.3 | 0.0 |
| | con | 10.5 | 0.0 | 5.3 | 10.5 | 21.1 | 10.5 | 42.1 |
| 2 | exp | 23.8 | 23.8 | 14.3 | 4.8 | 33.3 | 0.0 | 9.5 |
| | con | 19.0 | 0.0 | 14.3 | 4.8 | 33.3 | 19.0 | 9.5 |
| 3 | exp | 30.0 | 10.0 | 15.0 | 0.0 | 25.0 | 20.0 | 0.0 |
| | con | 15.0 | 0.0 | 10.0 | 5.0 | 25.0 | 30.0 | 15.0 |
| 4 | exp | 36.8 | 10.5 | 15.8 | 15.8 | 15.8 | 5.3 | 0.0 |
| | con | 5.3 | 5.3 | 10.5 | 10.5 | 36.8 | 26.3 | 5.3 |
| 5 | exp | 22.7 | 18.2 | 13.6 | 4.6 | 18.2 | 9.1 | 13.6 |
| | con | 13.6 | 9.1 | 0.0 | 9.1 | 45.5 | 22.7 | 0.0 |

"What is reading?" For this question and the two which follow it was not possible to tabulate responses into categories. Too few responses were given and no difference between the populations were discerned. Instead, a cross-section of the responses that were made are presented here:

It's like talking about something, except you're reading words.

It's like spelling, only it's reading.

It's something you need to write a note.

You can go any place in your mind.

When you see a word you got to say it. Then you know what the word is.

You learn to read by sounding words out.

It's a think that the teacher puts words up and you try to tell them out.

It's like pretend you're talking.

Reading is fun but writing is funnier.

Fine.

Fun. Something you look at and say a word and read it.

It tells you what the picture is doing.

Learning, it tells you things.

If you see a word you know, you read it.

It's like getting words out of a book and putting them into a story.

Like, it's like just looking at a word and then you know it. You know it. You just say it if you're ever picked to read.

Like if you heard the word lots of times, you recognize it and during reading group you say it.

"What do you think of yourself as a reader?" Personal comments about themselves as readers appeared throughout all the interviews. Listed below are some comments made during responses to other questions as well as to this direct question. Again, it was not possible to see differences between the two populations but it was possible to see a clear over-all relationship between their reading and what Ss thought of themselves in the following responses:

I read good

I think I'll get an "A" on my report card. (She did.)

In first grade you always learn to read and teachers teach you.

I like it (a book) a lot. I can read lots of things already.

I think I'm the best.

I'm kinda good. I'm getting happier. (She was a good reader who worried about many things.)

I think I'm a good reader. When I grow up I think I'll be able to know all the words.

I learn my words.

'Cause I'm in the first grade and in first grade, read.

I'm starting to read good. (He was right.)

I can read best. (He tested highest in his class.)

A good reader because I know all the words.
I think I'm a good reader. In words.

I learn my words.

I have a hard book and I know all the words.

I'm not too good of a reader. (This was a fairly accurate evaluation at this time.)

I don't think so because there's hard words and maybe I can't figure them out.

I'll be a good reader, if I learn.

I feel a little worried because it might be a little hard.

I might make a mistake.

> Because if you don't go to college you have to work all night like my father do. He didn't go to college. His mother and father didn't have enough money so he had to git a hard job and every night he have to stay 'til two o'clock in the morning.

"Tell me about the alphabet you are using in your class. How is it different from the one used in the other class?" The protocols show that hardly any Ss from the control population had anything to say about the alphabets. Some of these control population Ss asserted that in their opinion, "All classes have the same alphabets." One S from the control group said he knew about the i.t.a. He said he thought that the alphabet used in the other classroom was probably "medium" adding, "They like it as much as we do ours."

On the other hand, some Ss from the experimental population pointed out that their alphabet "had some different letters." Other Ss said their alphabet was "better for sounding out words." Some of these Ss went to great lengths explaining how the i.t.a. worked. A few said it was "special." Other Ss suggested that "We don't have the right one" but soon that condition would be remedied. A few Ss suggested that they would just as soon use "the regular one" now that they could read it. There were no evidences of traumatic reactions by these Ss to the i.t.a. although several of them reported that their parents expressed concern. Often this parental worry was noted by Ss whose father or mother had tried to teach them to read before these children had entered first grade.

Some Ss from the experimental population ventured into accounts of how the specific symbols in i.t.a. were supposed to be used, frequently referring to the t.o. as "the right way," "the regular way," or the "grown-up way."

Some complete interviews. The protocols of interviews of four subjects are presented in the Appendix. These protocals show how the picture interview, the focused interview, and the opinion interview were conducted and how the Ss responded.

Gilmore Oral Reading Test. All the selected Ss were tested with this test (in t.o.) at the end of the school year. Two members of the research team tested 52 Ss. Because of absences, data from 46 Ss were used, 23 from each population. If a certain S were absent from one group, data from his counterpart in the other group were not used. Scores were compared, using the t-test. Table XXIV shows that the means of the control group Ss were higher with respect to Accuracy and Rate but the differences were not significant.

It was not possible to perform an item analysis because of the nature of this test. The Ss who read best ended by making more errors of all kinds than did Ss who read less well.

## TABLE XXIV

RAW SCORES FOR ACCURACY AND RATE (WORDS PER MINUTE) GAINED ON THE GILMORE
ORA ORAL READING TEST BY SELECTED Ss

| | Group | N | Mean | S.D. | T-ratio | Significance of difference |
|---|---|---|---|---|---|---|
| Accuracy: | exp | 23 | 16.3478 | 12.86 | 1.07 | n.s. |
| | con | 23 | 20.3478 | 11.76 | | |
| Rate: | exp | 23 | 58.9565 | 37.39 | 1.16 | n.s. |
| | con | 23 | 70.9565 | 30.66 | | |

## SUMMARY

The results of the experiment were presented in this chapter. Data from the total population in the seven schools were presented. Results were described of an analysis of covariance statistic used to investigate the relationships of the initial and final test scores. Data from three additional schools were introduced. Finally, the results of interviews and an oral reading test given to a selected sample of Ss were set forth. A discussion and interpretation of the results presented in this chapter are discussed and interpreted in the final chapter.

# CHAPTER V

# DISCUSSION

The main purpose of this study was to compare the use of i.t.a. and t.o. in seven schools. The experimental class in each school was taught by two teachers. One of the teachers taught reading and other language activities and the alternate teacher taught other usual first-grade activities. The i.t.a. was used as the reading and writing medium. The control class was taught as was the experimental class, by the same two teachers. The same time schedules were used. The same methods of teaching were used. Often the same materials were used. The reading and writing medium used in the control class was the t.o. This research was not intended to be a comparison of methods of teaching. It was an investigation into what happened when the two alphabets were used.

The communities in which the schools were located represented a wide range of socioeconomic conditions. The population of Ss reflected this wide range. Scores gained by the experimental and control population on the initial tests were not significantly different. Other data also suggested that these populations were comparable at the start.

This concluding chapter is a discussion of the outcomes with respect to the three hypotheses as well as a discussion of some other findings.

## *READING WITH I.T.A.*

The first hypothesis was raised about the question whether children learn beginning reading better with i.t.a. This hypothesis was tested in this investigation with results on a transliterated test taken by the experimental group as compared to results gained by the control group on the t.o. version of the same test. In this discussion all the language sections of the STAN-W are considered, following the commonly held belief that language skills are interrelated. Results on the Spelling section of the STAN-W are isolated later for special attention.

### Some Results Appearing To Favor the Experimental Population

Significantly higher scores were gained by the total experimental population which took the STAN-W transliterated into i.t.a. The three specific areas of superiority in scores were: Work Reading, Spelling and Work Study. No significant differences were found between the groups for Paragraph Reading and Vocabulary. In three of the seven schools, the means of median scores were significantly higher in favor of the experimental class. Ss' in the experimental class in one school exceeded those of the control class on four of the five sections of the test. On the other hand, in two schools significant differences were not found between the experimental and control classes with respect to scores gained on the specific sections of the test.

Scored gained by experimental and control Ss on the STAN-W were also compared according to total raw scores originally gained by groups of boys and by groups of girls on the CTMM (See Table VI in Chapter Four). Three groups of Ss of each sex were created. It was found that experimental population Ss who originally gained a total raw score in the middle range of scores between 35 and 44 on the CTMM gained significantly higher scores than did Ss from the control population who originally had total raw scores on the CTMM falling within the same range. For the sub-group of all Ss who originally had scored above 45 and the sub-group of Ss who originally had scored below 34, there were no significant differences between experimental and control population Ss. Hence, the scores generally appear to give an advantage to the total experimental group, especially to Ss from three particular schools and also to children who gain 35 to 44 at the beginning of the first grade on the CTMM.

Some possible reasons. The use of the t-test statistic suggests that where significant differences in the scores occur, these differences were probably not caused by chance. Thus, the differences in scores must have been caused by some other factor or factors. The use of the i.t.a. for instruction may have been the main factor; the use of the i.t.a. merely may have been only one of many possible contributing factors; the use of the i.t.a. may not have contributed at all to the differences but merely happened to constitute an interesting correlary variable.

Further, the differences in the results may not be accounted for by differences in time spent on language activities. The amount and scheduling of time devoted to reading and other language activities by the experimental and control classes were kept very close. The differences in outcomes probably could not be attributed to differences in ways of teaching for the two populations. Moreover, the same two teachers taught both classes in each school. During observations and at meetings there was seen ample support to the belief that the teachers maintained throughout the school year an objective and professional concern for the experimental and control populations.

The differences may have been caused by the tests themselves. Educators will vary widely with respect to the credence they will place on whether tests really do evaluate what is most important to evaluate. Especially in the first grade, this is no small issue. The section following this one, on results from the analysis of covariance deals specifically with the tests themselves.

Some Results Appearing Not To Favor the Experimental Population

The supposed advantage for the total experimental group does not accrue to all the sub-groups. Thus, as a result of this study, there would be no particular reasons at this time to recommend the use of i.t.a. in four of the seven schools. The qualification, "at this time," is made because certain of the educational effects the Ss experienced may possibly not have taken hold yet. For example, there may have been some children who were not ready to read with any alphabet of any kind for a large part of the year. If, late in the school year, the i.t.a. just started to be of real help to these particular children, the results of this belated help may not have been revealed in terms of STAN-W scores.

Some possible reasons. If children are not able to use certain tools such as i.t.a., will mere exposure to these tools make these children able? Interviews in School VII revealed that not one S from both the classes ever mentioned "sounding out" a word either as a way to figure out an unknown word or as a general way to learn to read. Moreover, it is interesting to note some of phrases used in the reports of the Wechsler Intelligence Scale for Children given to the selected Ss. The reports were replete with phrases such as these: "dependency noticable," "great deal of dependency,""slowness in perception tasks initially," "does not discriminate well," "low vocabulary," "basic language and information deficits," and "poor visual organization." Factors such as these and many general social factors as well contribute to reading performance. Perhaps just one year is not adequate time to assess whether, for this school and possibly others like it, children learn to read better with i.t.a.

Other experimental sub-groups which did not gain superior scores were the Ss who originally gained over 45 or under 34 on the CTMM. This finding was true for boys, compared separately and for girls, compared separately. It may be fair to offer as any hypothesis the notion that high-scoring and low-scoring Ss on tests such as the CTMM show similar results after exposure to i.t.a. If this is found to be true, will this finding demonstrate that some pupils do not need i.t.a. and others cannot benefit from this medium? This conclusion is a distinct possibility.

## THE ANALYSIS OF COVARIANCE

It cannot be proved that by comparing results from the transliterated STAN-W with results from the regular version one actually can measure the differences between the experimental and control groups to determine if children learn to read better with i.t.a. Table XIV in Chapter Four shows the results of the analysis of covariance performed to check the relationship between the initial tests and the tests of dependent variables. This table shows that in all cases but two there was no significant difference between the experimental and control populations in how the initial tests served as predictors of the scores gained on the final tests. The only two times when the errors of prediction were seen to be significantly different the STAN-W was the final test. That is, the initial tests could not be used to serve as predictors of outcomes of the STAN-W when one group took the test in its regular form and the other group took the test after it had been transliterated into i.t.a. Moreover, the STAN-W is meant to be essentially the same test as the STAN-X. But for the latter test the errors of prediction were not found to be significantly different for the two populations.

Again, many factors may have caused this outcome. It might be argued that the groups really were not matched very well, after all. This might be true. However, all the other uses of the analysis of covariance as well as the t-test do not point to this explanation. There is a possibility that transliterating the test changed the test so that now the transliterated test contained a large number of items testing certain abilities which had not been measured by the predictors in any way. There is also a possibility that the abilities called for were changed because of the transliteration. For example, difficult words such as "through" and "thought" were now commonplace words for i.t.a. pupils. It is certainly easy to say, "See, that proves the regular orthography causes difficulties that can be solved by i.t.a." This may very well be true. But there remains the crystal clear evidence that the transliterated STAN-W scores cannot, in fact, be used to say with certainty that there is proof in favor of the experimental group.

## READING WITH T.O.

The second hypothesis dealt with results gained when all Ss took two tests in t.o. This hypothesis was important because there is complete agreement among all educators that the final objective of using i.t.a. in schools is to help children become competent readers of t.o. When pupils change from reading with i.t.a. to reading in t.o., this change is commonly referred to as "transition."

### Some Results Appearing To Favor Neither Population

With the five language sections of the STAN-X and with the total CRT, no significant differences were found between the total experimental populations (Tables VII and X in Chapter Four). In six out of the seven individual schools, no significant differences were found on scores for the entire tests. The most can be said is that generally the total experimental population's earlier experience with the i.t.a. did not impede them with respect to the median grade scores gained on the five language sections of the STAN-X nor the total raw scores gained on the CRT.

The finding on the total population differs from the data reported by Mazurkiewicz and reviewed here in Chapter Two. In the Bethlehem study, the i.t.a. population gained significantly higher scores on Total Reading on the CRT by 114 Ss who "could be considered to have made transition by being solely in t.o. for at least a week" (1964 b, p. 770). This sample of the Ss in the Bethlehem study were reported to have an average I.Q. of about 109. But, in the present study, when Ss were divided into groups according to the raw scores gained on the CTMM (the same test as that used to measure intelligence in Bethlehem), there were no significant differences between the experimental and control Ss. Consequently, it is fairly safe to infer that the findings are different for the two studies.

Some possible reasons. A most interesting result of this investigation was the fact that when data were gained from the group of three additional schools where one teacher taught each class, the results resembled the Bethlehem results. In Chapter Four data gained in these schools are shown on Tables XVI, XVII, and XVIII. On the STAN-X and the CRT the total i.t.a. population in the three associated schools gained significantly higher median scores than did the total t.o. populations in the three schools.

Why were the outcomes different in the three schools from the outcomes in the seven schools? Perhaps a potent argument may be launched to the effect that "the real benefits of i.t.a. may be secured in a totally self-contained classroom." But there are no compelling reasons to believe that the differences in the outcomes may be attributed to the differences in organizational patterns. Were the teachers of the i.t.a. classes generally better teachers of the skills that cause children to get higher scores on tests than were the teachers of the t.o. classes? Were these three teachers generally better teachers than were the teachers from the seven schools? No attempt was made to evaluate how well teachers taught but observations gave the firm impression that there were highly competent teachers in both groups. Were the children initially abler in the i.t.a. classes in the three schools? No. We know enough of small social groups to know of the subtle mystiques that flourish, sometimes not recognized in a cognitive way by any of the leaders of its members. We know that human motivations are complex. For "getting results," perhaps the three schools' results show this to be the way. Certainly, when one teacher teaches one class and one, another, it is more difficult to control factors as these:

> The comparable amounts of time spent in two classes on reading and other language activities, the emphasis placed on different kinds ofactivities, the ways of teaching, the amounts of professional attention given to the classes, and the comparability of the activities in classes just preceding the administration of the tests.

## SPELLING

The total control population gained significantly higher scores for Spelling. Three individual control classes scored significantly higher grade scores in Spelling than did the respective experimental classes on the STAN-X. These findings also differ from the data reported from Bethlehem. In the Bethlehem study, there was no significant difference reported between scores gained by the selected sample on the Spelling section of one of the Stanford tests.

It is not recommended that huge concern be placed upon how accurately pupils spell words in the first grade. This was a test in t.o. Thus, when spelling items were scored they were marked as wrong when experimental Ss spelled the words appropriately in i.t.a. but not correctly in t.o. In analysing the test items, it was seen that this was a frequent reason why items were marked as wrong. There was not much point to make a count of these, because spelling ability in i.t.a. had already been measured on the STAN-W.

But there are yet more compelling reasons why huge concern not be placed on results on the Spelling section for these or other first-graders. First, follow-up tests in later grades will more adequately evaluate the residual effects of i.t.a. Second, our greatest concern should not be placed, with first graders, on how accurately they spell this or that particular word now. Our emphasis must be directed to how well pupils can use language better to communicate ideas to other people. If for a while a child writes "wuz" for was," or "mor for "more," or "cum" for "come," it is more beneficial that he writes at all willingly than if teachers atrophy his desire to communicate with over emphasis on how to spell just so in first grade.

## WRITING

Communicating ideas in writing was the issue in the third hypothesis. The data appear to support the claim that at the time the writing samples were gained, experimental Ss from a wide range of backgrounds and abilities communicated better than did the control Ss. This finding is supported both by the use of the t-test and the use of the analysis of covariance. The judges, it will be remembered, had no way of knowing the medium used, the forms of spelling used, the schools from which the samples originally came, nor were they influenced by certain other clues that often creep into judgements such as were required here. Also, the conclusion is supported by the high correlations among the judges' ratings, suggesting the possibility of reliability.

The method used to evaluate how Ss communicated in the study appears to have provided an adequate measure to compare two populations with respect to written communication. No claim is made here that the intricate complexity of cognitive, affective, and social abilities have adequately been analysed into the criteria given to the judges. However, the data do show the abilities that were evaluated in the writing samples were probably predictable by the CTMM and LCRRT. This was shown in the analysis of covariance (Table XIV).

## A Word of Caution

Nevertheless, certain facts demand a word of caution to be added here. Observations and interviews revealed that pupils in the experimental classes began writing stories independently much earlier in the year than did Ss in the control classes. By Hallowe'en, a few children chose to write stories when they were free to choose from a range of acceptable first-grade activities. By January the choice to write stories became nearly universal in some classes. The teachers encouraged this kind of independent behavior.

Later in the year, children in the control classes also began to write. The teachers, of course, encouraged these children too. Children were told by their teachers not to worry too much about spelling, to put the initial sound, the final sound, or any sound they knew that would help communicate the meaning of a word. And some of the control classes accelerated in their choice of independent writing. While early in the school year it might have appeared there would be no way at all to compare writing samples from the two populations, the data show that comparisons were possible.

Would the differences have diminished if the school year had continued? Table XIII shows that the writing samples from both classes in Schools I and II received ratings among the highest total populations' but no significant differences were found between the respective classes in each of these schools. As classes in other schools developed their abilities to write would the differences between the experimental and control Ss diminish too?

Hence, the appropriate way to interpret these data would be to say it like this: At a certain point in time, there was a higher mean of the ratings given by judges to writing samples in favor of the total experimental group and to four of the experimental classes as well.

## A Real Promise

Suppose in writing, between experimental and control Ss the differences diminish. If this happens, perhaps even then the relatively comfortable start that some children seem to have made with language in school by using i.t.a. to write with may serve as a beneficial factor throughout their lives. The studies from England and in Bethlehem called attention to the fact that children wrote so well with i.t.a. Certainly, anyone who has seen the classes there will testify that some very interesting writing does take place. In the present study, the Ss wrote about the characters in their reading books. They wrote about their classes, their homes. They wrote about what they were afraid of and what they hoped to be. And perhaps as they learned they could write things about what boiled up inside them they raised their sights a bit about what they could do--and perhaps their teachers raised their sights a little too. There was a little girl in one of the experimental classes, a child who never--ever--spoke in school. But at the end of one of her stories, replete with illustrations and candid details about her siblings and how they all spent Christmas, she wrote the complete t.o. alphabet in capital t.o. letters and under this, in i.t.a., she wrote, "This is my alphabet. I like to print it. When I do it makes me go fast. When I go fast it makes me feel like I like to do it." Her i.t.a. printing contained some casual spellings of some of the words. But any reader could know she had something she thought was important for her to say--something important, perhaps, by way of being a self with a splendid newly found skill.

There is a good deal we all must learn about how children can learn by means of their oral and written expression of what they are and do and see. There is a good deal more we need to know about what it.a. can or cannot do for children. But if the interest in i.t.a. does nothing more than help us see that we can cut children loose from barren, rote, hacking away from day to day on dull drill that means nothing to them and lets them write, then those who have introduced i.t.a. have, indeed, performed a mighty service. After years and years, we still have not seen an end to the futility of the spelling grind--nor the reading grind. We have not accepted the notion that excellence can be attained when children are set free to be. If teachers seize upon the opportunity to let their classrooms sparkle with the life that useful enterprise can bring, then who knows what heights we all can reach as man tries desperately to communicate with fellow man.

## THE DATA ON THE SELECTED Ss

Three dominant ideas were seen in the interview protocols of a selected group of Ss from the experimental and control populations. First, the Ss talked about their reading experiences in a highly personal way. Second, Ss responses agreed with observations. Third, there was no over-all discernable difference between the experimental and control Ss with respect to what they said about their reading experiences. Only with respect to the number of words used to tell about the stories Ss were reading was a significant difference at the end of the year. However, it would be unwise to offer a generality based on this datum.

The outcomes may either have been caused by the fact that there actually were no perceived differences in the Ss' experiences or by the possibility that the methods of interviewing and analysing the data were not appropriate to detect the differences. It might have been possible to see clearer trends in the data if fewer categories were used into which to tabulate the responses. However, this course was not followed because of the belief that it is preferable to gain inconclusive results than to lump together categories which really do not seem to express the same ideas. Nevertheless, the interviews did give the researchers many specific examples of some things that were going on in the Ss' minds and certainly confirmed the idea that beginning reading is a highly sensitive, personal, and significant part of first-graders' attempts to cope with life. This latter reaffirmation alone is sufficient to give a moment's pause to educators who feel they would like to make of teaching reading a sterile, mechanistic regime of rote.

On the Gilmore there were no significant differences between the selected experimental and control Ss. This finding confirmed data gained from the entire population on two standardised tests.

## THE PLAN FOR FOLLOW-UP

From time to time, in this report, the need for follow-up has been noted. Because of the intricate web of cognitive, affective and social reactions that reading programs bring, there may be long-lasting influences not measurable by any tests at the end of first grade. In many follow-up studies of first-grade reading, the outcomes change in higher grades. It was for these reasons that when this study was designed the plan to conduct a follow-up was incorporated.

## FINAL SUMMARY

1. The total experimental group gained significantly higher scores on a test transliterated into i.t.a. than did the total control groups taking the test in its usual form.
2. Analysis of covariance pointed to the possibility that the act of transliterating the test may actually have changed the test.
3. There were no significant differences in scores gained on two tests by the total groups when all the Ss took the tests in the traditional alphabet.
4. The total control groups gained significantly higher scores in Spelling.

5. Writing samples were rated by judges for communication of ideas and were rated significantly in favor of the total experimental group.
6. Interviews with selected Ss showed the highly personal experience that reading is but did not appear to point out differences between the groups on what interviewees felt about their reading experiences. The Gilmore Oral Reading Test scores confirmed data re: reading in t.o. presented for the entire population.
7. The need for follow-up in later grades was reaffirmed.

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## CHILD'S INTEREST INVENTORY

To the Parents of ______________________________

(In responding to the statements on this form, often should be interpreted to mean at least once or more times per week, and sometimes to mean less than once weekly. Please circle the correct word in each case.)

1. This child (often sometimes never) likes to use books and magazines in his play.
2. He (often sometimes never) likes to use paper and pencil in his play.
3. He (often sometimes never) asks questions about words, letters, and numbers which he sees around him (on such things as cars and packages, signs, T.V., various lists, books, magazines, letters and other mail, phonograph records, etc.)

   What are some examples of such questions he asks or comments he makes regarding such letter, word, and number symbols (if he makes them)?

   ______________________________________________________________

   ______________________________________________________________

   ______________________________________________________________

4. He (often sometimes never) uses his own books.
5. He (often sometimes never) likes to pretend he is "reading."
6. If he does pretend to be "reading," what does he like to "read" at such times? (children's books? adult books? magazines? newspapers? comic books? other?)

   ______________________________________________________________

7. What does he do when he pretends to be "reading?"

   ______________________________________________________________

8. Others(often sometimes never) read to him.

Who chooses what is read at such times?______________________________

Is it just reading, or are there questions and discussion with the story?

______________________________________________________________

9. Has he wanted to learn how to read? Yes No

Has anyone tried to teach him? Yes No

Who?_________________________

How?__________________________________________________________

______________________________________________________________

10. Are there brothers and sisters who read? Yes No

Do they ever read to this child? Yes No

Do they themselves seem to enjoy reading? Yes No

Do they talk about what they read? Yes No

11. Does this child ever go to the public library? Yes No

About how often?___________________________

Does he select his own books? Yes No

Does he ask to go? Yes No

12. List several activities which the family enjoys doing together (such as movies, watching T. V., going on picnics or to the beach, Sunday School, local trips or excursions, vacation trips, work and play activities around the home, and other activities.)

______________________________________________________________

______________________________________________________________

13. What do you consider to be one or two of the child's major interests at this time?

______________________________________________________________

## KINDERGARTEN TEACHER DATA AND PREDICTION SHEET

1. Name of the child: ____________________

2. Birth date: ____________________

3. Does the child live with both parents? __________

4. How many brothers and sisters does he have and what are their ages:
____________________

5. What is the father's occupation? ____________________

6. What is the mother's occupation? ____________________

7. What are some of the child's major interests? ____________________
____________________

8. What kinds of schools has he attended previously? (i.e., Sunday School and nursery school) ____________________

9. What kinds of educational advantages has he had in his home? (i.e., access to books, storytelling, travel, T. V., playroom, pets)

10. Can this child read? ______ To what extent? ____________________

11. Does he ever talk about reading? ____________________

12. Does he seem upset by lack of formal reading now? ____________________

13. Does he seem eager to learn how to read this year? ____________________

14. Does he ever bring books of his own from home? ______ For what purpose does he bring them if he does? ____________________

15. Does he choose books as a favorite activity during "Choosing Time?" ____

16. Does he have stories of his own to share with the class? ____________

17. Does he appear to like story time? __________

18. Does he enjoy "making up" stories in connection with his art or construction activities?____________________

19. Does he ever "play" he is reading?________________

20. How does he participate in story time? (By listening? By asking questions? By making comments?)________________________

21. Do he or his parents reveal any anxieties concerning the fact that children at his age are not involved in formal reading?____________

22. Is this child, in your opinion, being taught to read at home or elsewhere at the present time?____________________________

23. Is this child mature enough, in your judgment, physically, mentally, emotionally, and socially so he could begin formal reading?__________

24. What would you consider his present readiness to be? (i.e., "excellent," "above average," "average," "below average."__________

__________________________________________________

25. Please place a number from one to ten on the line below indicating your idea of how well this child will be able to perform on a test of reading at the end of the first grade. Please take into account all your knowledge of the child, his maturity, his background of language experiences, and his ability to do school work. This prediction is kept confidential, to be used only by the principal and the director of the research study.

Examples:

(10) This child will read and comprehend far beyond other children of his age.

(5) This child will be able to read books which are rated to be at the first grade level and will show an average ability in reading at the end of the first grade.

(1) This child will know only a few words and will probably be considered a "non-reader."

Your prediction:____________________________________

## INFORMAL INVENTORY ABOUT COMMUNITY, SCHOOL, AND TEACHERS

1. **Local first-grade entrance age** ____________

2. **Length of official school day** ____________

3. **Length of official school year (no. of days)** ____________

4. **Number of first-grade classes in your school** ____________

5. **Approximate number of pupils in entire school district (total elementary and high school in city)** ____________

6. **Nature of library services:**

   **Approximate size of collection available:** ____________

   **Traveling, central, or in school?** ____________

   **Method of use of library; scheduled, on call, etc?** ____________

### Teachers (Please give information for both teachers)

1. **Degrees held and type of certification**

   **Teacher A** ____________

   **Teacher B** ____________

2. **Total number of years of professional teaching (not including student teaching)**

   **Teacher A** ____________

   **Teacher B** ____________

3. **Total number years experience teaching in first grade**

   **Teacher A** ____________

   **Teacher B** ____________

## INTERVIEWERS' GUIDE

### The Picture Interview

The interview is conducted as follows: The S is shown one of the prepared photographs of a child holding a bood. Use the photograph of a boy or girl according to the sex of the S. For Negro children use the portraits of Negro children. The S is asked these questions:

1. Please tell me what he (she) is doing with this book.
2. Does he (she) like to ____________________? (From first response. Supply "look" if no response). What makes you think so?
3. What will he (she) do when he (she) finishes ____________________? (Supply "looking at this book" if no response for #1).
4. Can you tell me a story about this child?
5. What does he (she) do if he (she) doesn't know a word?
6. Do you think he (she) will become a good reader? What makes you think so?
7. How will he (she) learn to read?

Pictures are used as follows: For the first and third interviews, use the appropriate picture of an individual child holding a book. For the second and last interviews use the picture of a group of pupils. When you use this picture, substitute "they" for "he" or "she" in your questioning. In the fourth interview use the picture of children writing and drawing.

### The Focused Interview

After the picture interview, say, "Now let us talk about the reading lesson you just had in the classroom." The focus of the remaining part of the interview is directed to the lesson which the interviewer had observed. The interviewer asks the following:

1. Tell me about the story you were just reading.
2. Were there any words that were hard for you?

3. Think back to when you were waiting for your chance to read aloud. Can you tell me what you were thinking about?

4. Think back to when you were reading aloud. Tell me how you felt.

5. Tell me about this book you were reading from. (Do you like it?)

The focused interview is conducted after observing the S in a reading lesson in the classroom. Ordinarily, the teacher has planned that there be some oral reading during the lesson. For the first three interviews use the picture first, then conduct the focused interview on the episode. For the fourth and fifth interviews conduct the focused interview first, then use the picture.

## The Opinion Interview

After the third interview is finished ask these questions: "What is reading?" and "What do you think of yourself as a reader?" After the fifth interview repeat these questions. Then ask final questions about the alphabet used in the interviewee's classroom. "Tell me about the alphabet you are using in your class and "How is it different from the one used in the other class?"

## OBSERVATION GUIDE

The observation of the Ss is done according to this observation guide:

1. S's behavior during a discussion
2. S's behavior as he reads silently
3. S's behavior as other children read orally
4. S's behavior as he reads orally
    a. specific words missed
    b. "expression"
    c. S's recapitulation of what he has read
    d. inferences drawn by S from what he has read
    e. indications of apparent enjoyment or lack of enjoyment when reading
5. S's behavior during independent work

## INTERVIEW GUIDE FOR INTERVIEWS WITH TEACHERS

1. **How does (he, she) generally react during reading lessons?**
2. **How does (he, she) generally react during free reading times?**
3. **In what activities does (he, she) seem to be most interested at this stage?**
4. **What kinds of materials does (he, she) read?**
5. **Tell me an anecdote which seems to describe (his, her) attitude toward reading.**
6. **What kind of difficulties does (he, she) encounter in reading.**
7. **How is (he, she) making out in word-attack skills?**
8. **Does (he, she) make any comments about the alphabet being used in the class? If so, what comments?**

## SOME COMPLETE INTERVIEWS

1. The first interview reproduced below was the fifth interview conducted with this S from the experimental population. In the fifth interview the focused interview was conducted first. Following this the picture interview was conducted and finally was conducted the opinion interview ending with the last answers centering on the alphabet. It is possible to see in this interview the personal context with which this S responded. It is also possible to see the candid evaluation she made of her own reading ability, an assessment which happened to be quite accurate. The interview ended with the S's comments on the i.t.a. The interviewer picked up the S's statements about reading "the right way" and gained additional information on the S's views on the alphabet used in her class.

Tape # 21 410-525 - May 6, 1965

DIANE (exp. pop.)

Focused interview:

I: Please tell me about the story you were just reading.

S: It was about this girl and she went to the post office, And she met this man. This man had a magic box. And she got tired of guessing and her legs got tired. And her legs wanted her to sit down. And so, she asked her mother if she can go in the car, but her mother said no because there was a Christmas package box in there. And she didn't want her to see it. And it was wide, and not too high. And this man in back of her mother, he said, would you like to sit on my box. And this man came over and she heard something that said, Betsy. And this man with the green hat on came over and sat on her and blinked his eye at her. And her legs got tired so she was hopping on one foot and then the other. She could see through boxes and she saw an apron, a white, blue and this one with houses on it.

I: Were there any words that were hard for you?

S: No.

I: Think back to when you were waiting for your chance to read aloud. Can you tell me what you were thinking about?

S: You see, I was waiting and I hoped she would be calling on me after Christine. I was thinking if it would be me, in the story.

I: Think back to when you were reading aloud? Can you tell me how you felt?

S: I'm nervous when I read. I don't know, you see because I'm afraid I'm going to get every word wrong, but I don't. That if she would let us ask any questions again like we did before we read.

I: Tell me about this book you were reading from.

S: It was Book 7 because we're the highest reading. Because we started reading before any other group. That, you see, because um, the second reading group is in the monkeys and the polar bears and the polar bears are in the lowest ones. They need help. It's hard to read because it has capital letters and we don't know much about capital letters.

Picture interview:

I: Please tell me what they are doing.

S: They reading.

I: Do they like to read?

S: I think so. Because if I was them I would like to read.

I: What will they do when they finish reading?

S: Go back to their seats and let another reading group read.

I: Can you tell me a story about these children?

S: That they're reading and if I were them I would like to read and when they're done they could let another reading group read.

I: What do they do if they don't know a word?

S: Well, they would, when we reading, when we were in book 1 we would not be reading back in our seats, but reading in the reading group. Silently but not real out loud. She would say, what is the word that you're stuck on. And so we would point to it. And then she would say the word.

I: What do they do when they don't know a word?

S: They would just sit there and try to figure it out. And then the other person would say it and then they could go on reading.

I: Do you think they will become good readers?

S: Yes. Cause if the're in second grade and very good readers I would think they would be good.

I: How will they learn to read?

S: They learn words on the blackboard and they look in this book and they read.

Opinion interview:

I: What do you think reading is? Tell me, what is reading?

S: It something where you learn first, but you don't learn in a book, you learn it on the blackboard, words before you come to the book. You learn 'em. Before I came to school I know my "ABC's" and then I knew my name before I came and I knew how to count before I came to school.

I: What do you think of yourself as a reader?

S: I don't think I'm too good.

I: Why?

S: Cause I read so slow. This girl, Susan, you know the one with the dress on? That was in my reading group, she reads real fast and we can't catch up with her.

I: Tell me about the alphabet you are using in your class.

S: Well, my mother don't like it because she wants me to read the right way. And I like to read this way because you make "a" funny and the "e's" and the "i."

I: Are you learning to read the right way?

S: Yes. The capital letters, we are. And then some words in the book we are. But, It has a big capital "B" and then all the small letters.

I: How is this alphabet different from the one used in the other class?

S: Because, the other children they read the right way. But we, you see they make the "a's" that way and then we make it, like the "angel." Did you see the kind of a "a." That's the way we make it. And like in "ice cream" we make the "i"..."ie" together. And then we make the "o," two "o's."

I: Can you read in the "regular way?"

S: Yeh. In the book. I have a book at home and I can read it.

I: Do you think your alphabet helps you to learn to read?

S: Because it's easier. Because the real alphabet you have to know if it's "a" or "ah." In the alphabet that we're using the "a" like in angel we kinda just know and the "ah" like in apple we just know, like that.

2. The interview presented below was also the fifth interview. This little boy, from the control group, gives an unusual definition of reading. He also shows his great excitement about being able to read. He does not have too much to say about the alphabet used in the experimental class.

Tape #16 420-528 April 27, 1965

JONATHAN (con. pop)

Focused interview:

I: Tell me about the story you were just reading.

S: It was fun. It was about that Jane. They were playing together with Susan and they were taking things out to play with and they put a cat on the chair. And then I thought if there was a story before the beginning I could think that you know that a couple times already Spot took it a few times and they put it on the chair and they thought it was a safer place. And then it was real funny and Dick came and he came and um, he um, and took it and they thought their dog, Jane's dog, took it because maybe um, the rest of the story I was talking about a few minutes ago maybe you know they thought it was a safer place or something, but they would be wrong. Then Jane went out and then in the top of the tree was the cat and then they discovered that it wasn't Spot. Because they know that dogs can't climb and they have a cat and maybe they thought it was a cat or even Dick or something. That took the cat.

I: Were there any words that were hard for you?

S: No.

I: Think back to when you were waiting for your chance to read aloud. Can you tell me what you were thinking about?

S: I like to read. I like to read some of the story. And feel how I like it.

I: Can you tell me anything else you were thinking about?

S: Thinking about many things. Words that I had trouble with, not in this story, if I'm going to read when I grow up and things like that.

I: Think back to when you were reading out loud. Tell me how you felt.

S: Like, I don't know I guess I felt kinda good or something.

I: Tell me about this book you were reading from.

S: Well, it's fun and there's lots of work to do. And lots of reading. I like to read.

Picture interview:

I: Please tell me what they are doing.

S: They're reading books.

I: Do they like to read books?

S: Yes.

I: What makes you think that?

S: Learn and practice so when they grow up they'll see a sign or something, like they don't know what the word "stop" is, you know when they grow up, they look at it and it won't bother them and they won't know how to read. And when somebody asks you how to spell it you won't know how to read. And that wouldn't be so fun.

I: What will they do when they finish reading?

S: I don't know.

I: Can you tell me a story about these children?

S: No.

I: What do they do if they don't know a word?

S: They could sound it out.

I: How do you do that?

S: Well, like if it was stop you would get the sounds. You'd go like "ST - ah - and puh" and then you would sound the word and put it together.

I: Do you think they'll be good readers?

S: I guess. Cause they're practicing.

I: How will they learn to read?

S: So the teacher can teach them some of the words or something and you know teach them how to read the ways and all different kinds of letters. And show them when they first get in school.

Opinion interview:

I: What is reading?

S: Well, it's like science or something. It tells you about things. What somethings are.

I: What do you think of yourself as a reader?

S: I wouldn't know about that either. I guess if I keep practicing and read all the words. And then when you just go by and you see something you just know how to read it and stop and think about it. What you've been reading.

I: Tell me about the alphabet you are using in your class.

S: Well, we've got the ABC alphabet.

I: How is it different from the one used in the other class?

S: In the other class they have the i.t.a.

I: What kind is that?

S: I don't know but different letters are made different.

I: Can you read the signs in their room?

S: Yeh.

3. The following interview shows how a S from the experimental population worked on a word in a book designed to aid the transition to t.o. We see how she continued over a period of time to struggle with this word. The word was "square." Here again, after the required questions were finished and as this was the final interview, the interviewer posed a few extra questions about the alphabet to the S.

Tape #21 - 525-647 May 6, 1965

CHRISTINE (exp. pop.)

Focused interview:

I: Please tell me about the story you were just reading.

S: It was about a girl named Betsy. And she was waiting in line for her mother to get out of the post office. And she kept on waiting and she was getting so tired that she kept on going on one foot and then on the other foot. And her mother said stop that Betsy. And Betsy said I have to do it because I want to sit down. The man behind her mother said why don't you sit down here. And he had this square box. And it wasn't really big. And when Betsy got up she thought she could see in it. And she looked at it and it was just a plain box with writing on it, but she could see in it. And it was a magic things for ... I don't know, Tommy and it was for him. Then she could see in this other lady's box and there was aprons in it and the lady I forgot to put the names on it. Cause they're special aprons. She looked at them and she knew what it was. One was green, one was blue, and one was white with on the pockets there were yellow houses. And the lady, she didn't know that. When Betsy told her the last one the lady said how did you know that, and the man he put his hand on Betsy's shoulder and he put his finger up here.

I: Were there any words that were hard for you?

S: There was "square" because it wasn't in our way.

I: What did you do about it?

S: I didn't know it so I kept on sound it out. Finally one of the people in the reading group told me.

I: Remember when you were waiting for your chance to read aloud. Can you tell me what you were thinking about?

S: I was thinking if I wouldn't get a word, get all the words right.

I: Think back to when you were reading aloud. Tell me how you felt.

S: Felt good. I was thinking of that word. In the story when I was reading to myself I didn't know that word so I sounded it out a lot but I couldn't get it so I skipped it.

I: Tell me about this book you were reading from.

S: This is the hardest book we've had. We never had the same kind of stories. But in the other book we had the same kind of stories.

Picture interview:

I: Please tell me what they are doing.

S: They're reading.

I: Do they like to read?

S: Yeh.

I: What makes you think so?

S: They're looking at the words.

I: What will they do when they finish reading?

S: They will collect the books and go back to their seats.
Then they might finish their work.

I: Can you tell me a story about these children?

S: (No answer).

I: What do they do if they don't know a word?

S: Sound it out. Like a word that they don't know they (makes sounding out sounds).

I: Do you think they'll be good readers?

S: Yes.

I: What makes you think so?

S: Because they listen to the other person read.

I: How will they learn to read?

S: If they keep on saying the word, you shouldn't just skip it they should sound it out if they don't know it then they could skip it.

I: What do you think reading is?

S: Fun.

I: What do you think of yourself as a reader?

S: I don't know if I'm a bad reader or a good reader.

I: Tell me about the alphabet you are using in your class.

S: It's not the same as yours. "A" .....at the beginning not "a" and "b" is the little "b." And "p" is the little "p."

I: How is it different from the one used in the other class?

S: There's little letters. You use big letters in your first words, capital letters.

I: Does the alphabet help you read?

S: It's the way we sound them. That helps.

I: How are you going to learn the other way?

S: From the reading books at home. That's what I do and the teacher says that's good.

I: Can you read the other way?

S: Yes.

4. This control group S displayed her outstanding reading comprehension, discussed a word that was hard for her, showed her enjoyment of reading, recommended "sounding out" and "looking up" as good ways to know words, and finally, suggested that pupils in the other class should learn the "really right" way before school closes.

Tape #21 124 - 199 April 27, 1965

MELISSA (con. pop.)

Focused interview:

I: Please tell me about the story you were just reading.

S: Well, you see there was this boy and his name was Andy and these two boys, Dick and Jack, when Andy was in his wagon. These two boys, Dick and Jack came and wanted him to come with them because there was going to be the circus parade. But he went and Andy went and put his wagon away but when he came back he didn't come back fast and the boys wanted him to run but he didn't come very fast because he shoe started to come off and then it came off and then he called and the boys couldn't hear what he said. And then when he got his shoe off he heard a noise. And he heard it was coming down the street. And then he saw it was the circus parade. And a man who was riding an elephant asked him if he wanted a ride (continued to tell the whole story accurately).

I: Were there any words that were hard for you?

S: Well, one that was "heard" but I thought it was "hear-ed". I couldn't get that very well.

I: Think back to when you were waiting for your chance to read aloud. Can you tell me what you were thinking about.

S: Well, I do like to read but I just looked at it and read by myself with no problem at all. I do like to read out loud.

I: Think back to when you were reading out loud. Tell me how you felt.

S: Happy. I like to read out loud.

I: Tell me about this book you were reading from.

S: I think it is a nice story. The other ones I used to read were very nice too.

Picture interview:

I: Please tell me what these children are doing.

S: Reading.

I: Do they like to read?

S: It looks like it. This kind of book looks like another book we had.

I: What will they do when they finish reading?

S: When they finish reading in the group or when they finish reading the whole book?

I: ...in the group.

S: They will go back to their seats. They may start their work again something the teacher wanted them to do.

I: Can you tell me a story about these children?

S: They're reading now and the teacher's reading with them. And after they finish reading they write what the teacher wanted them to write on a sheet of paper.

I: What do they do if they don't know a word?

S: They should sound it out or look it up in another book they might have seen it in and then they'll know.

I: Do you think they will be good readers.

S: Maybe if they try hard.

I: How will they learn to read?

S: By the teacher. And if they don't know some words she can help them by helping to sound them out.

Opinion interview:

I: What is reading?

S: I'm not sure but I think it's fine.

I: What do you think of yourself as a reader?

S: I like it.

I: Tell me about the alphabet you are using in your class. How is it different from the one used in the other class?

S: Well, the other class has a much different alphabet because they have to sound out words. And for "s's" they put "z's" instead of "s." "Has" they put a "z" there.

I: What do you think about the other alphabet?

S: Well, I think they should learn the kind we have soon because they have to learn the things that are really right. Because the "z's" at the end and other things, that's not really right. Our reading soon, before school closes.

## SCHOOL PERSONNEL COOPERATING IN THE INVESTIGATION

ELIZABETH, NEW JERSEY

Mr. John E. Dwyer, Superintendent
Mrs. Marion Edelman, Reading Consultant
Miss Gertrude McAndrew, Reading Consultant
Mr. Frank Grote, Principal
Miss Julia Donnelly, Teacher
Miss Mary Moser, Teacher

LONG BEACH, NEW YORK

Dr. Earl F. Soper, Superintendent
Mr. Robert R. Kirsch, Assistant for Instruction -- Research
Mrs. Sylvia Schatz, Reading Supervisor
Dr. Jerome Oberman, Principal
Mrs. Victorine Graham, Teacher
Mrs. Alice Greenbaum, Teacher

MIDDLETOWN TOWNSHIP, NEW JERSEY

Mr. Paul F. Lefever, Superintendent
Mrs. Abigail Noto, Supervisor
Mrs. Evelyn Rudolph, Supervisor
Mr. George Lane, Principal
Mrs. Marie Trenski, Teacher
Mrs. Joyce Walton, Teacher

MOUNTAINSIDE, NEW JERSEY

Dr. Levin Hanigan, Superintendent
Mrs. Diana Oberlin, School Psychologist
Mr. Herbert Brown, Principal
Mr. William Hummell, Principal
Mrs. Virginia Fritz, Teacher
Mrs. Mildred Herron, Teacher
Mrs. Ina Hodes, Teacher
Mrs. Nancy Shapiro, Teacher

OGDENSBURG, NEW JERSEY

Mr. Robert Flood, Sussex County Superintendent
Miss Patricia Dolan, Principal
Mrs. Carol Joscelyn, Teacher
Mrs. Mary Struble, Teacher

SCHENECTADY, NEW YORK

Dr. Robert Murry, Superintendent
Mr. Wendall Andrews, Director of Instruction
Mr. Rupert Pratt, Teacher
Mrs. Lora Simkins, Teacher

SPARTA, NEW JERSEY

Dr. Robert Holl, Superintendent
Dr. Arlene Rose, Principal
Mrs. Doris Lankewich, Teacher
Mrs. Mary Trub, Teacher

TRENTON, NEW JERSEY

Dr. Richard Beck, Superintendent
Dr. Gloria Fried, Principal
Miss Carol Davis, Teacher
Mrs. Eilcen Krueger, Teacher

VINELAND, NEW JERSEY

Dr. Victor J. Podesta, Superintendent
Miss Gladys Gavin, Principal
Mrs. Doloris Morin, Teacher
Mrs. Margaret Puleo, Teacher